38/15

TC-YX50

US Model
Canadian Model
AEP Model
UK Model
E Model

'Dolby' and the double-D symbol are the trade marks of Dolby Laboratories. Noise reduction system manufactured under license from Dolby Laboratories Licensing Corporation.

STEREO CASSETTE DECK

SPECIFICATIONS

Power Requirements: 120 V ac, 60 Hz (US, Canadian model)
220 V ac, 50/60 Hz
(240 V ac adjustable by authorized Sony personnel) (AEP model)
240 V ac, 50 Hz
(220 V ac adjustable by authorized Sony personnel) (UK model)
110, 120, 220 or 240 V ac adjustable, 50/60 Hz (E model)

Power Consumption: 20 W (US, Canadian, E model)
18 W (AEP, UK model)

Dimensions: Approx. 355 (w) x 105 (h) x 225 (d) mm
[14 (w) x 4 1/4 (h) x 8 7/8 (d) inches]
including projecting parts and controls

Weight: Approx. 4.2 kg, 9 lbs 5 oz

Recording System: 4-track 2-channel stereo

Fast-forward and Rewind Time: Approx. 90 sec. (with C-60 cassette)

Bias Frequency: 105 kHz

Signal-to-noise Ratio (NAB, at peak level):

Cassette \ Dolby NR switch	OFF	B-TYPE ON	C-TYPE ON
TYPE IV Cassette (Sony METALLIC)	59 dB	66 dB	72 dB
TYPE III Cassette (Sony FeCr)	59 dB	66 dB	72 dB
TYPE II Cassette (Sony CD-α or EHF)	57 dB	63 dB	69 dB
TYPE I Cassette (Sony BHF or HFX)	54 dB	61 dB	67 dB

Total Harmonic Distortion: 1.0% (with Sony METALLIC and FeCr cassettes)

— Continued on page 2 —

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIES PAR UNE TRAME ET UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES, LES VUES ÉCLATÉES ET LA LISTE DES PIÉCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

MICROFILM

SONY®

SERVICE MANUAL

Frequency Response: DOLBY NR OFF:
- With TYPE IV cassette (Sony METALLIC)
  20 – 17,000 Hz
  30 – 15,000 Hz (±3 dB)
  30 – 13,000 Hz (±3 dB, 0 VU recording)
  30 – 15,000 Hz (DIN)
- With TYPE III cassette (Sony FeCr)
  20 – 16,000 Hz
  30 – 15,000 Hz (±3 dB)
  30 – 15,000 Hz (DIN)
- With TYPE II cassette (Sony CD-α or EHF)
  20 – 16,000 Hz
  30 – 14,000 Hz (±3 dB)
  30 – 14,000 Hz (DIN)
- With TYPE I cassette (Sony BHF or HFX)
  20 – 15,000 Hz
  30 – 13,000 Hz (±3 dB)
  30 – 13,000 Hz (DIN)

Wow and Flutter: 0.04% WRMS (NAB)
±0.14% (DIN)

Inputs: LINE IN (phono jacks)
Sensitivity 77.5 mV (–20 dB)
Input impedance 50 kΩ

Outputs: LINE OUT (phono jacks)
Output level 0.435 V (–5 dB) at load impedance 50 kΩ
Load impedance over 10 kΩ

0 dB = 0.775 V

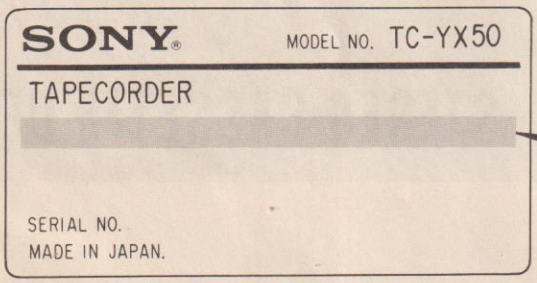
Tape Transport Mechanism: TCM-110V17

While the information given is correct at the time of printing, small production changes in the course of our company's policy of improvement through research and design might not necessarily be indicated in these specifications. We ask you to check with your appointed Sony dealer if clarification on any point is required.

Note:
Appliance conforms with EEC Directive 76/889 regarding interference suppression.

MODEL IDENTIFICATION

– Specification Label –



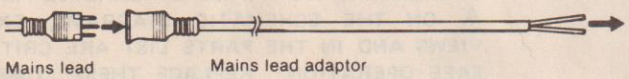
AEP model:	AC 220 V ~	50/60 Hz	18W
UK model:	AC 240 V ~	50/60 Hz	18W
US, Canadian model:	AC 120 V	60 Hz	20W
E model:	AC 110, 120, 220, 240 V ~	50/60 Hz	20W

SECTION 1
OUTLINE

1-1. HOW TO USE THE UNIT

For the Customers in the United Kingdom

The mains lead plug of your apparatus is a 3-pin type especially designed to be connected only to the Sony TA-YX5F amplifier. This amplifier has receptacles on the rear to receive this plug to supply mains power to other components of your audio system. To connect the apparatus directly to a mains power point in your house, firmly insert the 3-pin plug into the supplied mains lead adaptor.



Mains lead Mains lead adaptor

CAUTION
Connect the 3-pin plug only to the mains outlet on the components mentioned above or to the supplied mains lead adaptor.

Important
The wires in the mains lead adaptor are coloured in accordance with the following code:
Blue: Neutral
Brown: Live
As the colours of the wires in the mains lead adaptor of this apparatus may not correspond with the coloured markings identifying the terminals in your plug proceed as follows:
The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured black.
The wire which is coloured brown must be connected to the terminal which is marked with the letter L or coloured red.

FEATURES

The TC-YX50 is a compactly designed cassette deck which offers solid reliability and outstanding convenience with the following features.

Logic-controlled function buttons and remote control operation
Feather touch function buttons for fast effortless operation enable you to switch directly from any one mode to another mode. Any function button operations can be remotely controlled with the optional remote control unit.

C-type Dolby NR (noise reduction) system
In addition to the conventional B-type Dolby NR system, this cassette deck employs the newly-developed C-type Dolby NR system which reduces tape noise twice as effectively as the B-type system. The C-type system also incorporates an anti-saturation network to improve the high-frequency dynamic range by 4 dB at 10 kHz.

LED peak level meters and REC LEVEL control lever
Fast 12 segment LED peak level meters for precise readings of recording level, and the simple operation of REC LEVEL control lever covering both left and right channels make recording level setting easy.

Two motors
The two motor drive system assures accurate and stable tape transport. The capstan is driven by a FG frequency servo motor to keep wow and flutter low and provide smooth torque.

Automatic tape select system
The tape type is automatically detected and the recorder is adjusted to its optimum bias current for recording and the optimum equalization for both recording and playback by simply inserting the cassette in the cassette holder.

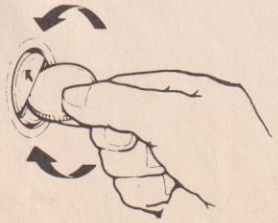
SD (Super high Density) head
The high performance SD record/playback head and the magnetic focusing four-gap erase head can handle the new metal tapes. By using the metal tapes, you can take advantage of the increased output level, reduced distortion, added high-frequency response and improved S/N ratio that they provide.

Record muting function
The record muting button enables you to automatically make a 4-second blank space between selections.

Auto play and memory stop/play function
Auto play offers automatic transfer from rewind into play and the memory counter enables the tape to stop and play at any preselected spot.

OPERATING VOLTAGE

Before connecting the unit to the power source, check that the operating voltage of your unit is the same as the local power line voltage.
The USA and Canadian model (Type 1) operates on 120 V ac.
The Continental European model (Type 2) operates on 220 V ac (or 240 V ac adjustable by authorized Sony personnel).
The United Kingdom model (Type 3) operates on 240 V ac (or 220 V ac adjustable by authorized Sony personnel).
The model for other countries (Type 4) operates on either 110, 120, 220 or 240 V ac. The voltage selector is located on the rear panel. If the selector must be reset, **disconnect the ac power cord** and turn the selector with a coin so that the arrow on the selector points to the appropriate voltage.



PRECAUTIONS

On safety
- Before operating the unit be sure that the operating voltage of your unit is identical with that of your local power supply.
- Should any solid object or liquid fall into the cabinet, unplug the unit and have it checked by qualified personnel before operating it any further.
- Unplug the unit from the wall outlet if it is not to be used for an extended period of time. To disconnect the cord, pull it out by the plug. Never pull the cord itself.

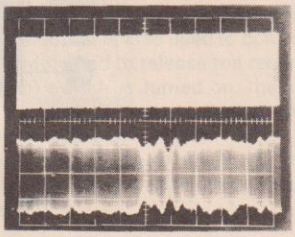
On installation
- Good air circulation is essential to prevent internal heat build-up in the unit. Place the unit in a location with sufficient air circulation.
- Do not install the unit near heat sources such as radiators or air ducts, or in a place subject to direct sunlight, excessive dust or mechanical vibration.
- Install the unit with the front panel facing toward you. Do not install the unit in an inclined position.

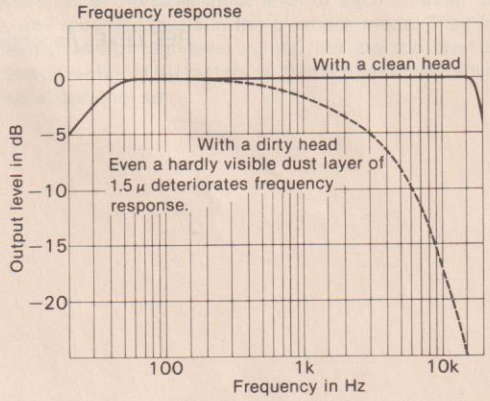
On head cleaning
The performance of your unit is dependent on the periodic cleaning of the heads and all surfaces over which the tape travels.
Dirty heads and a dirty tape path cause :
Loss of high frequency response
Loss of sound volume
Sound drop-outs
The heads and tape path should be cleaned after 10 hours of operation. For details, see "Maintenance" on page 11.

Playback waveform at 10 kHz

With a clean head

With a dirty head (The output level fluctuates.)



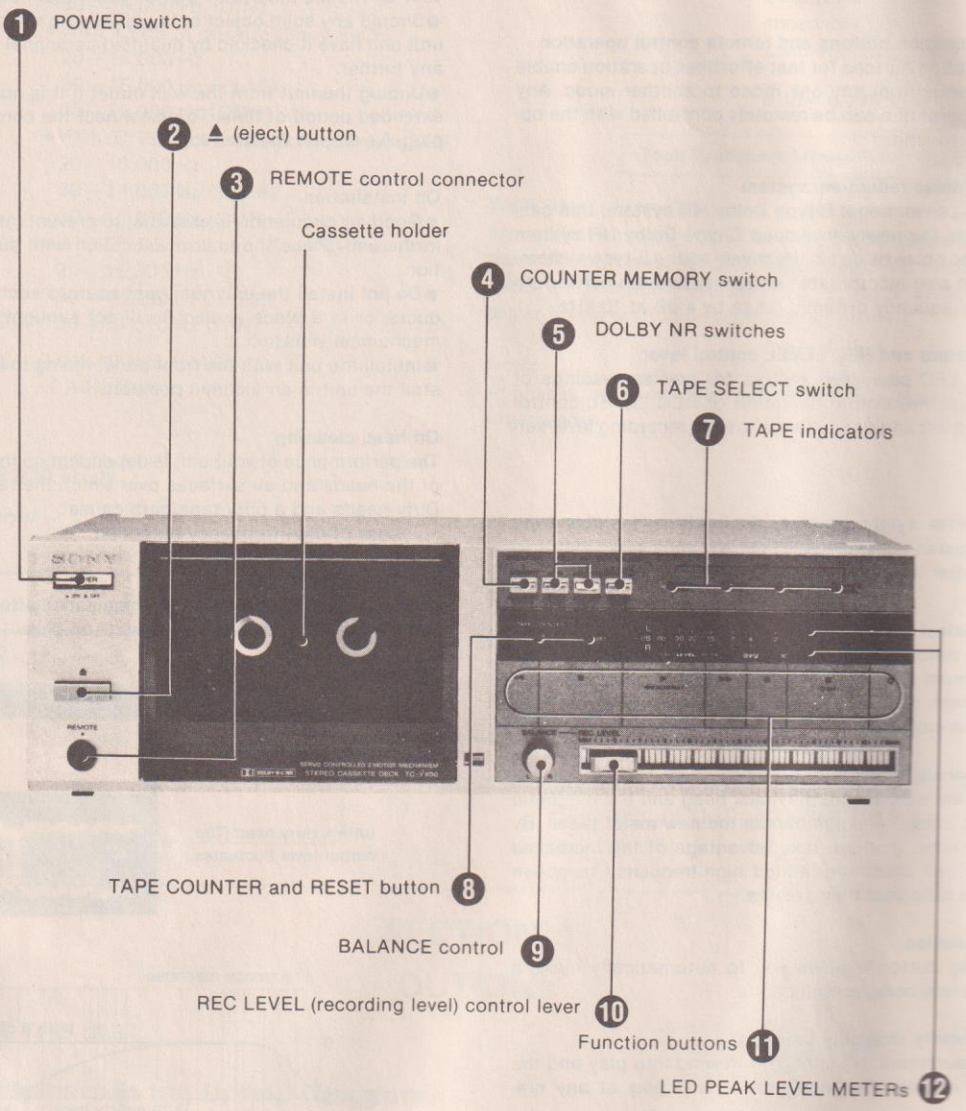


On operation
Because of the safety mechanism, the function buttons will not operate if the cassette holder is not closed completely and if there is no cassette or if a cassette has been incorrectly inserted into the cassette holder.

For the customers in the USA
For detailed safety precautions, see the leaflet "IMPORTANT SAFEGUARDS".

FUNCTION OF CONTROLS

The numbers in the photo are keyed to the following explanations.


1 POWER switch
2 ▲ (eject) button
3 REMOTE control connector
Cassette holder
4 COUNTER MEMORY switch
5 DOLBY NR switches
6 TAPE SELECT switch
7 TAPE indicators
TAPE COUNTER and RESET button 8
BALANCE control 9
REC LEVEL (recording level) control lever 10
Function buttons 11
LED PEAK LEVEL METERs 12

❶ POWER switch
This turns the power on or off. The lamp in the cassette holder will light up when the unit is turned on.

❷ ⏏ (eject) button
Press this button to open the cassette holder.

❸ REMOTE control connector
Connect the optional RM-50 (wired) or RM-80 (wireless) remote control unit to operate the tape transport functions from a distance. Synchronized operation is also possible with selected Sony turntables, using the optional RM-65 remote control unit. Read the instruction manual of your remote control unit before operating it.

❹ COUNTER MEMORY switch
Depress this switch to rewind the tape to the "000" point on the tape counter.
Pressing the ► button together with the ◄◄ button automatically starts playback from "000."
When you do not use the memory function, press this switch again and release.

❺ DOLBY NR switches
The left switch turns the Dolby NR* (Noise Reduction) system on and off and the right switch selects either the B-type or C-type Dolby NR system.
To record with the Dolby NR process, depress the ON/OFF switch to the ON position and choose between B-TYPE (⎍) and C-TYPE (⎓).
To record without the Dolby NR process, press the ON/OFF switch again to release.
When playing back, set these switches to the same position used in recording.
For details about the Dolby NR system, see page 14.

* "Dolby" and the double-D symbol are trade marks of the Dolby Laboratories Licensing Corporation. Noise reduction system manufactured under license from Dolby Laboratories Licensing Corporation.

❻ TAPE SELECT switch
Generally set this switch to ⎍ AUTO (released). The automatic tape select system will then operate. When using a TYPE III (Fe-Cr) cassette or a TYPE IV (METAL) cassette which has no appropriate detector slots, depress this switch to ⎓ III Fe-Cr (IV METAL). See page 9.

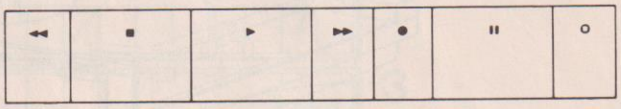
❼ TAPE indicators
When inserting a cassette, one of the indicators will light up depending on the type of the tape and the position setting of the TAPE SELECT switch.

❽ TAPE COUNTER and RESET button
The tape counter provides a numerical reference point while recording which can be used to index a recorded cassette. To reset to zero, press the RESET button.

❾ BALANCE control
This controls the balance of the left and right channel recording level. Turn it clockwise (towards R) to decrease the left-channel level and vice versa.

❿ REC LEVEL (recording level) control lever
This lever adjusts the recording level of the left and right channels at the same time.

⓫ Function buttons
It is possible to switch directly from one mode to another. The indicator lamps light when the tape deck is in the forward, record or pause mode.



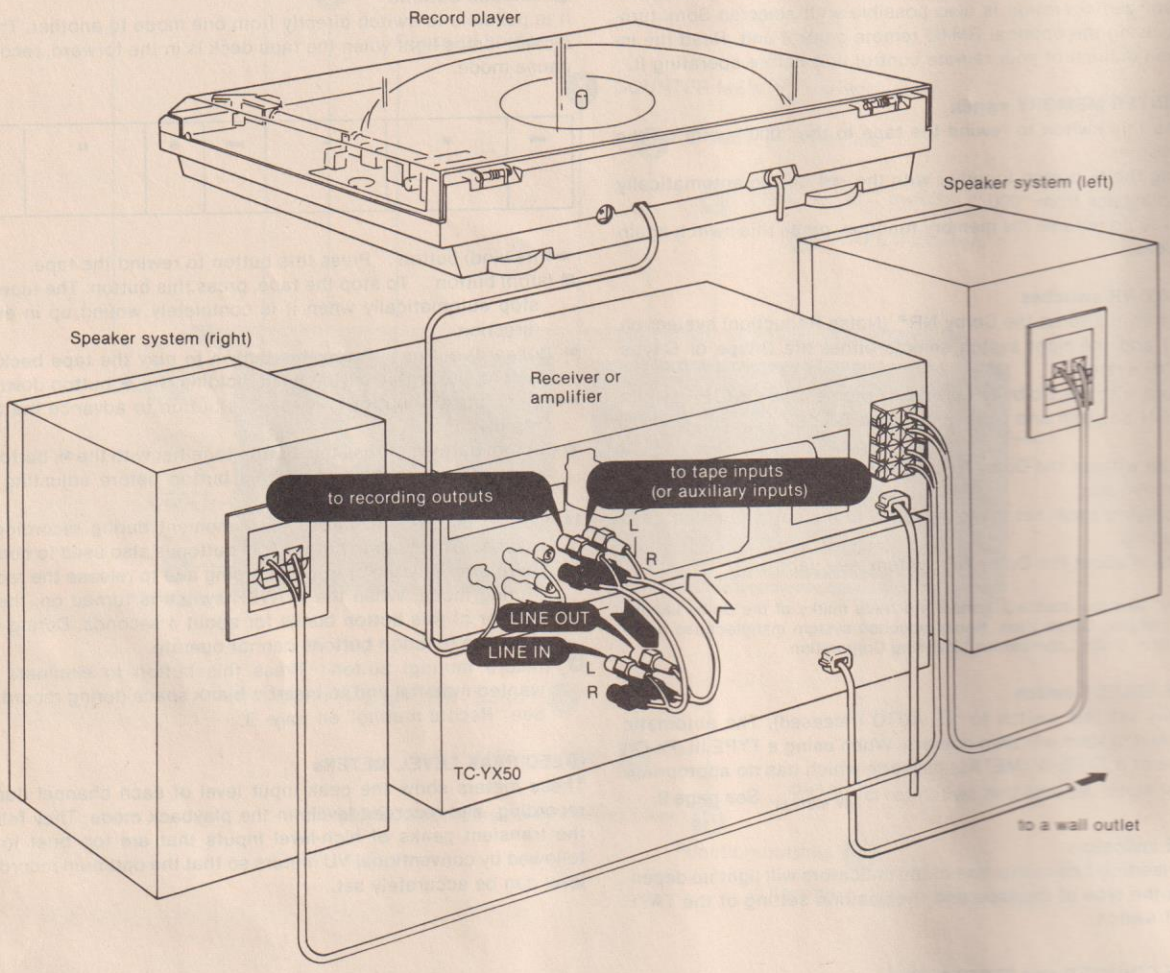
◄◄ (rewind) button : Press this button to rewind the tape.
■ (stop) button : To stop the tape, press this button. The tape will stop automatically when it is completely wound up in either direction.
► (forward) button : Press this button to play the tape back. To record, press this button while holding the ● button down.
►► (fast-forward) button : Press this button to advance the tape rapidly.
● (record) button : Press this button together with the ► button to start recording. Also press this button before adjusting the recording level.
II (pause) button : To pause for a moment during recording or playback, press this button. This button is also used to control more precisely the start of recording and to release the record muting mode. When the POWER switch is turned on, the indicator of this button blinks for about 4 seconds. During this time, the function buttons cannot operate.
O (record muting) button : Press this button to eliminate unwanted material and to insert a blank space during recording. See "Record muting" on page 9.

⓬ LED PEAK LEVEL METERs
These meters show the peak input level of each channel during recording, and recorded levels in the playback mode. They follow the transient peaks of high-level inputs that are too brief to be followed by conventional VU meters so that the optimum recording level can be accurately set.

CONNECTIONS

Notes

- Turn the amplifier off before making any connection.
- Be sure to insert the plugs firmly into the jacks. Loose connections may cause hum and noise.
- The red plug of the supplied connecting cord should be connected to the red jack (R : right channel) and the other plug to the white jack (L : left channel).

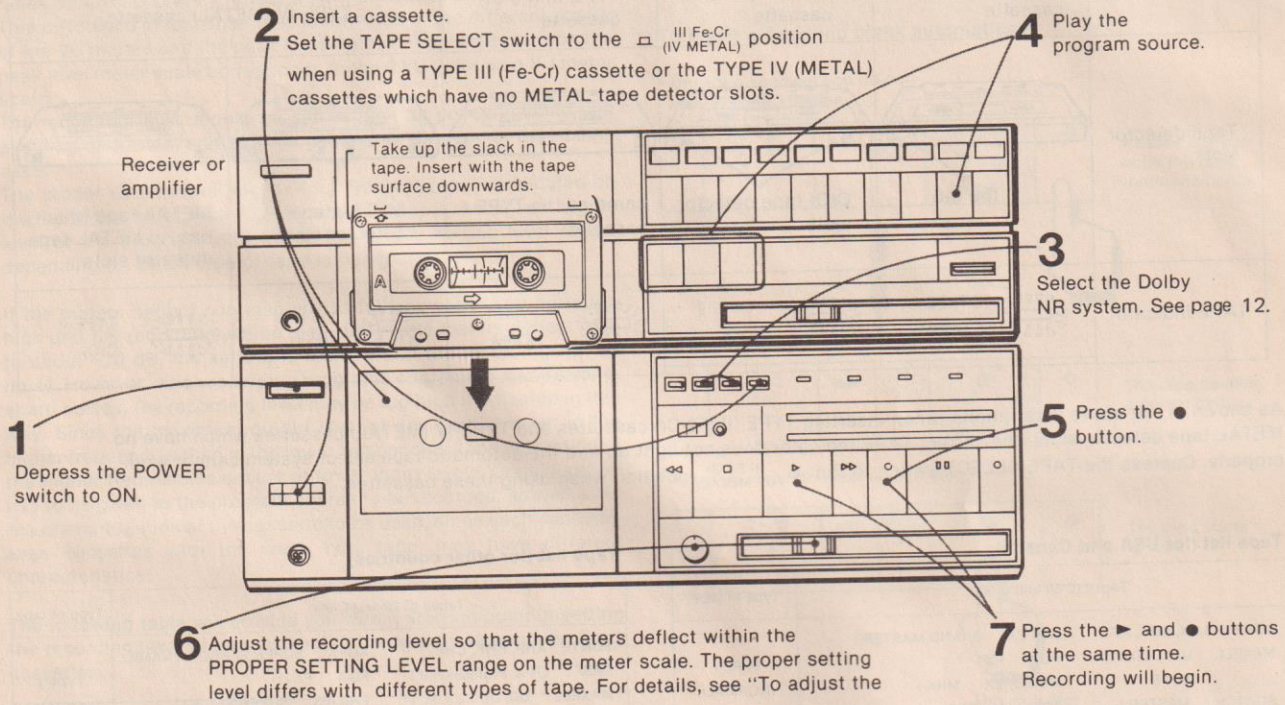


For recording

For playback

RECORDING

TO RECORD
The numbers in this diagram indicates the sequence to be followed.

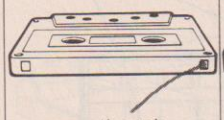
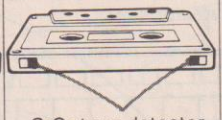
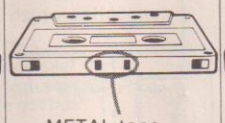
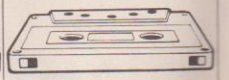

2 Insert a cassette.
Set the TAPE SELECT switch to the III Fe-Cr (IV METAL) position when using a TYPE III (Fe-Cr) cassette or the TYPE IV (METAL) cassettes which have no METAL tape detector slots.
4 Play the program source.
Receiver or amplifier
Take up the slack in the tape. Insert with the tape surface downwards.
3 Select the Dolby NR system. See page 12.
1 Depress the POWER switch to ON.
5 Press the ● button.
6 Adjust the recording level so that the meters deflect within the PROPER SETTING LEVEL range on the meter scale. The proper setting level differs with different types of tape. For details, see "To adjust the recording level" on page 9.
7 Press the ► and ● buttons at the same time. Recording will begin.

MORE ACCURATE RECORDING STARTS
You can use the ❙❙ (pause) button to start recording more accurately than is possible when recording is started by pressing both the ● button and the ► button.

1 After completing step 4 in the diagram before, press the ❙❙ button.
2 Hold the ● button down and press the ► button.
3 Adjust the recording level.
4 At the moment you wish to start recording, you need only press the ❙❙ button again.

AUTOMATIC TAPE SELECT SYSTEM

With the TAPE SELECT switch at the AUTO position, this automatic tape select system is actuated by the detector slots of certain cassettes and automatically sets the optimum recording and playback characteristics.
The tape type detected will be shown by the indicator.

	TYPE I (NORMAL) cassette	TYPE II (CrO_2) cassette	TYPE III (Fe-Cr) cassette	TYPE IV (METAL) cassette	
Tape detector slots	 the tab	 CrO_2 tape detector slots	same as the TYPE I cassette	 METAL tape detector slots	 METAL tape which has no METAL tape detector slots
TAPE indicator	TYPE I NORM	TYPE II CrO_2	TYPE I NORM	TYPE IV METAL	TYPE II CrO_2

As shown in the above illustrations, when inserting TYPE III (Fe-Cr) cassettes and TYPE IV (METAL) cassettes which have no METAL tape detector slots, the correct TAPE indicator does not light up and the automatic tape select system cannot work properly. Depress the TAPE SELECT switch to the ⊓ III Fe-Cr (IV METAL) position when using these cassettes.

Tape list (for USA and Canada)

Tapes (C-60 and C-90)		Type of tape
SONY: LNX, SHF, HFX MAXELL: UD, UD-XL I, XL I-S SCOTCH: MASTER I	AMPEX: GRAND MASTER I FUJI: FX-I MEMOREX: MRX-1 TDK: AD, AD-X	TYPE I (NORMAL)
SONY: UCX-S, EHF MAXELL: UD-XL II, XLII-S SCOTCH: MASTER II	AMPEX: GRAND MASTER II FUJI: FX-II MEMOREX: HIGH BIAS II TDK: SA, SA-X	TYPE II (CrO_2)
SONY: FeCr SCOTCH: MASTER III	BASF: PROFESSIONAL III	TYPE III (Fe-Cr)
SONY: METALLIC	Other metal tapes	TYPE IV (METAL)

Tape list (for other countries)

Tapes (C-60 and C-90)		Type of tape
SONY: AHF, BHF, CHF BASF: LH-X, Professional I MAXELL: UD, UD-XL I, XL I-S SCOTCH: MASTER I	AGFA: SUPER FERRO DYNAMIC FUJI: FX-I PHILIPS: SUPER FERRO-I TDK: AD	TYPE I (NORMAL)
SONY: UCX-S, CD-α BASF: Professional II MAXELL: UD-XLII, XLII-S SCOTCH: MASTER II	AGFA: STEREO CHROM FUJI: FX-II PHILIPS: CHROMIUM TDK: SA, SA-X	TYPE II (CrO_2)
SONY: FeCr BASF: Professional III SCOTCH: MASTER III	AGFA: CARAT PHILIPS: FERRO CHROMIUM	TYPE III (Fe-Cr)
SONY: METALLIC	Other metal tapes	TYPE IV (METAL)

TO RECORD MATERIAL ONTO A SPECIFIC PORTION OF TAPE

When you want to re-record a specific portion of tape or to insert new material between two points on a tape you will find it handy to be able to change directly from the playback to the record mode by pressing the ● button while holding the ► button down.

TO ADJUST THE RECORDING LEVEL

Adjust the recording level while reading the input level of the program source to be recorded on the peak level meters.
The peak level meters instantaneously register the input signal level while conventional VU meters have a lag so that they many times do not accurately reflect a strong input of short duration.
This difference in response time is reflected in the different scales of the VU meters and the peak level meters. The −4 dB point on the peak level meter scale corresponds to the 0 VU point on a VU meter scale.
The recording level should be set as high as possible while still avoiding distortion, and this will depend on the type of tape being used.
The proper setting level for the four types of tape is indicated on the top of the meter scale. Simply make sure that the highest signal level of the program falls within the proper setting level range, depending on which type of tape is being used.

If the meters deflect continuously to full scale, the setting is too high and the recording will be distorted. If the meters deflect only to about −10 dB, the setting is too low and the recording will be noisy. However, when recording programs containing many strong, sharp pulses, the recording level may be too high if adjusted in this way. Since the maximum output level of any tape is lower in the higher frequencies than in the lower frequencies, tape saturation at the higher frequencies occurs at lower input levels. Consideration has to be given to the program source to be recorded, as well as to the characteristics of the cassette to be used, since each cassette, even cassettes with the same type tape, may have different characteristics.

The following table will provide you with a starting point in setting the recording level of various kinds of programs when using Sony cassettes.

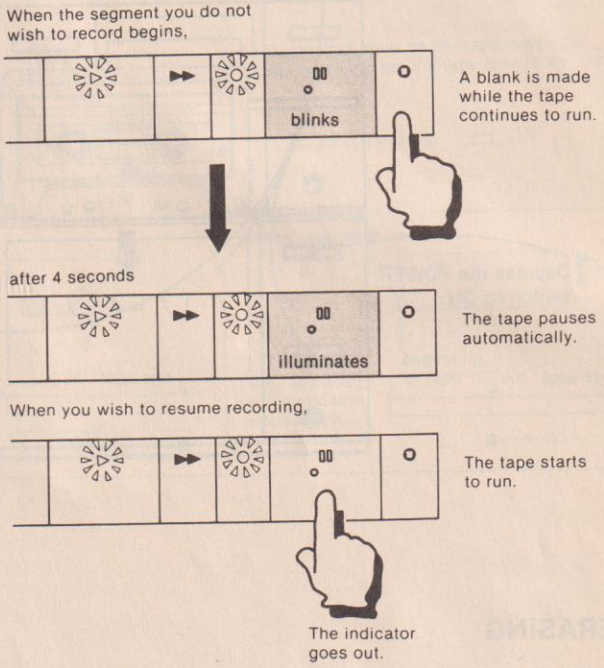
Type of tape	Sony cassettes	Low and mid freq. range programs (vocal, etc.)	Mid and high freq. range programs (piano, guitar, etc.)
TYPE I	CHF, LNX	0 dB	− 2 dB
	BHF, HFX	+ 2 dB	0 dB
	AHF, SHF	+ 3 dB	+ 1 dB
TYPE II	CD-α, EHF UCX-S	+ 2 dB	+ 2 dB
TYPE III	FeCr	+ 5 dB	+ 1 dB
TYPE IV	METALLIC	+ 6 dB	+ 6 dB

Note
The peak level meters show the input level during recording and the recorded level during playback. If the recording is distorted at high input levels, when the recording is played back the meters will indicate these distorted passages as levels lower than the actual input levels.

RECORD MUTING

By pressing the ● (record muting) button during recording, four seconds interspacing is provided automatically, eliminating unwanted program material such as broadcasting commercials. While the record muting is operating, the incoming signal is not recorded on the tape but it continues to register on the meters and feed to the monitor so that you know exactly what is going on.

To insert a 4-second blank automatically

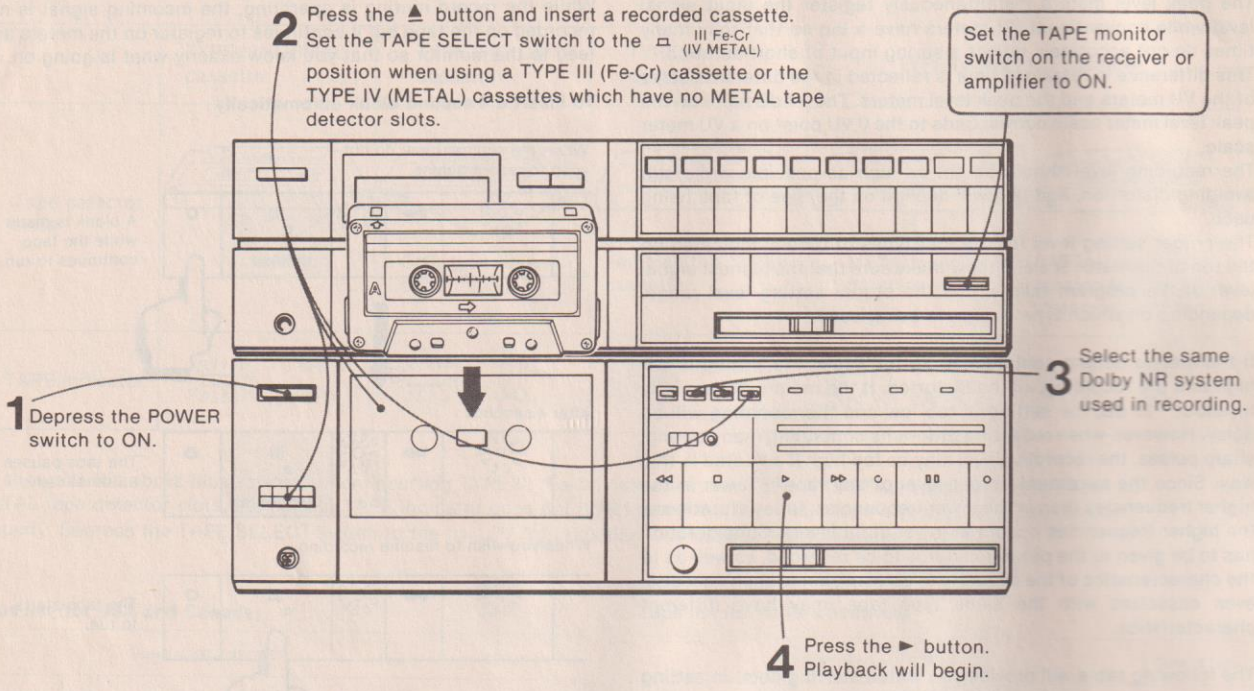

When the segment you do not wish to record begins,
blinks
A blank is made while the tape continues to run.
after 4 seconds
illuminates
The tape pauses automatically.
When you wish to resume recording,
The tape starts to run.
The indicator goes out.

To insert a blank less than four seconds long
Press the ● button to mute recording. Press the ❚❚ button when you want to resume recording.

To insert a blank over four seconds long
Hold down the ● button for as long as you want the blank segment on the tape to be. After four seconds, the indicator of the ❚❚ button will blink more rapidly. When you release the ● button, the tape deck will be in the pause mode. When you want to resume recording, press the ❚❚ button to release the pause mode.

PLAYBACK

The numbers in this diagram indicate the sequence to be followed.


2 Press the ▲ button and insert a recorded cassette. Set the TAPE SELECT switch to the III Fe-Cr (IV METAL) position when using a TYPE III (Fe-Cr) cassette or the TYPE IV (METAL) cassettes which have no METAL tape detector slots.
Set the TAPE monitor switch on the receiver or amplifier to ON.
1 Depress the POWER switch to ON.
3 Select the same Dolby NR system used in recording.
4 Press the ► button. Playback will begin.

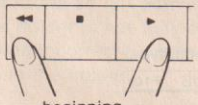
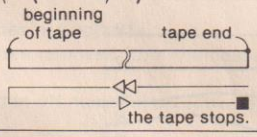
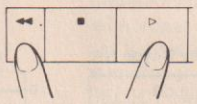
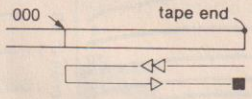
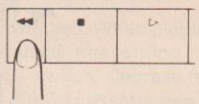
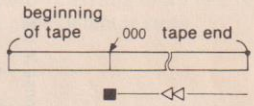
ERASING

When the tape deck functions in recording mode, the erase head automatically erases any previously recorded material.
To erase without recording :

1 Make sure that the safety tab of the cassette is in place, or that the tab slot is covered with plastic tape.
2 Insert the cassette to be erased and check that the TAPE indicator corresponds to the inserted tape. Depress the TAPE SELECT switch if the indicator and the tape do not correspond.
3 Set the REC LEVEL control fully to "0". (Disconnecting all inputs will result in a more complete erasure.)
4 Depress the ● and ► buttons simultaneously.

AUTO PLAY AND MEMORY STOP/PLAY

To play from the beginning of a tape after rewinding, use the auto play function.
To locate a particular point on the tape, use the COUNTER MEMORY switch.

To start the playback from the beginning after rewinding	To start playback from a particular point after rewinding	To stop the tape at a particular point after rewinding
Auto play	Memory play	Memory stop
Before rewinding check that the COUNTER MEMORY switch is not depressed. COUNTER MEMORY ⊓ OFF	At the desired point on the tape, press the RESET button to set the tape counter to "000". COUNTER MEMORY ⊓ ON	At the desired point on the tape, press the RESET button to set the tape counter to "000". COUNTER MEMORY ⊓ ON
When rewinding  After the tape is completely rewound, the tape will automatically replay. 	When rewinding  The tape will replay automatically after rewinding to the "000" point. 	When rewinding  The tape will automatically stops at the "000" point. 

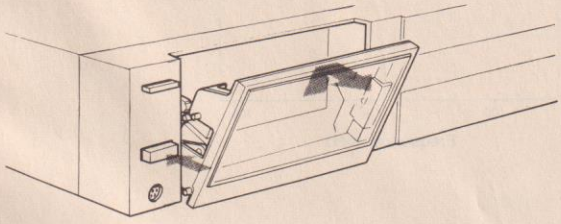
Why does the tape stop around "998"?
In order to avoid any chance of cutting off the starting point.

How can the tape be rewound further than "000"?
Press the ◀◀ button again.

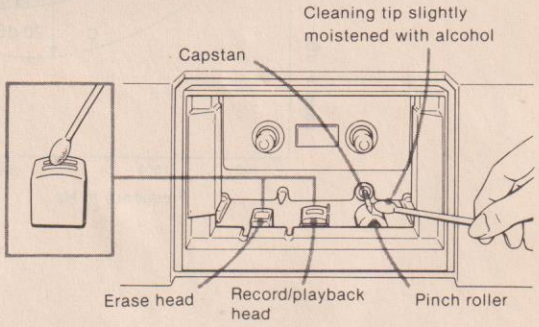
MAINTENANCE

Cleaning of heads and tape path
We recommend cleaning after every 10 hours of operation. To make the best possible recordings, however, you should clean all surfaces over which the tape travels before every recording.

1 Press the ▲ (eject) button to open the cassette holder. Remove the window as illustrated.



2 Push the frame in.
3 Wipe the head, the pinch roller and the capstan with a cleaning tip slightly moistened with cleaning fluid or alcohol.



DOLBY NR (NOISE REDUCTION) SYSTEM

There have been until recently just two types of Dolby NR system: the A-type for professional use, and the B-type, a simplified version of the A-type, employed by most consumer-grade cassette decks. Now, a third type of Dolby NR system is available, the C-type. The C-type system reduces tape noise much more effectively than the B-type system.

The basis of the Dolby NR system

During recording, low-level high-frequency signals, which tend to be obscured by tape hiss, are boosted so that they are substantially higher in level than any tape noise. When these signals are played back, the level is lowered to the original input level, while simultaneously the level of any tape noise is reduced to the same extent.

The Dolby B-type NR system thus reduces tape noise by 10 dB at 5 kHz. The C-type system reduces noise by 20 dB at 5 kHz. The Dolby C-type NR system also begins to take effect at frequencies lower than the B-type system.

Anti-saturation network

Normally, recording tape will saturate more easily at the higher frequencies. The Dolby C-type NR system incorporates a high frequency anti-saturation network. During recording, the anti-saturation network automatically reduces high-level high-frequency signals. When these signals are played back, the level is automatically boosted to the original input level. At 10 kHz, the tendency of the tape to saturate is reduced by 4 dB by the use of this network.

Playback of Dolby NR encoded tapes

For the best sound, lowest distortion, and most effective noise reduction, it is essential that a tape recorded using either the B-type or the C-type Dolby NR system be played back using the same system that was used during the recording process. We recommend that you label the cassettes you record as being either non-Dolby NR, Dolby B NR, or Dolby C NR.

Fig. 1 Encoding characteristics

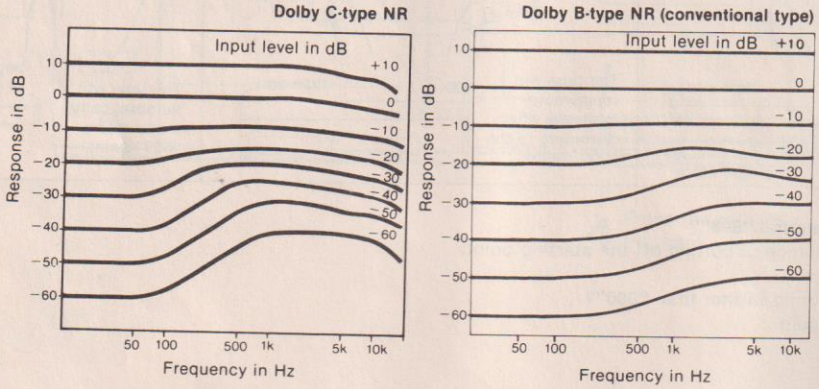


Fig. 2 Noise improvement

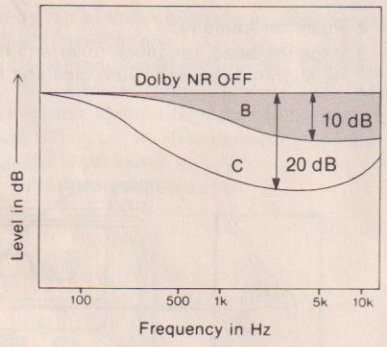
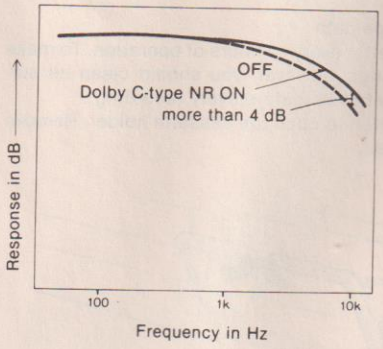


Fig. 3 Saturation level improvement



TROUBLE CHECKS

The following trouble checks will help you correct the most common problems encountered with a tape deck. Should any problem persist after you have made these checks, consult your nearest Sony service facility.
Before proceeding with these trouble checks, first check these basic points :

- The power cord must be firmly connected.
- Amplifier connections must be firmly made.
- Heads, capstan and pinch roller should be clean.
- The amplifier controls and switches should be set correctly.

FUNCTION BUTTONS AND TAPE TRANSPORT PROBLEMS

The function buttons do not activate right after the POWER switch is turned on.

- Logic-controlled function buttons operate approximately 4 seconds after the POWER switch is turned on.

The function buttons do not activate.

- The cassette holder is not fully closed.
- The cassette is incorrectly inserted into the cassette holder.
- No cassette in the holder.

The ● button does not activate.

- The tab has been removed from the cassette.

The automatic shut-off mechanism activates before the end of the tape.

- The tape is slack.
- The COUNTER MEMORY switch is set to ON.
- This situation may also be caused by a deformed cassette shell.

Tape transport noise seems excessively loud in rewind or fast-forward mode.

- This situation depends upon the cassette used and is not a problem.

RECORDING AND PLAYBACK PROBLEMS

Recording or playback cannot be made or there is a decrease in sound level.

- Contamination or magnetic build-up on the record/playback head.
- Improper connection.
- Improper setting of the amplifier controls.

Excessive wow or flutter or drop out

- Contamination of the capstan or pinch roller.

Incomplete erasure

- Contamination of the erase head.

Increase of noise or erasure of high frequencies

- Magnetic build-up on the head.

Unbalanced tone in higher frequencies

- Improper setting of the DOLBY NR switches. When playing back, set the switches to the same position used in recording.
- Improper setting of the TAPE SELECT switch. Depress the TAPE SELECT switch when using a TYPE III (Fe-Cr) cassette or a TYPE IV (METAL) cassette which has no METAL tape detector slots.

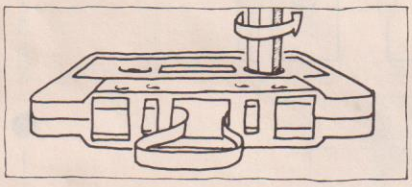
NOISE

Hum noise

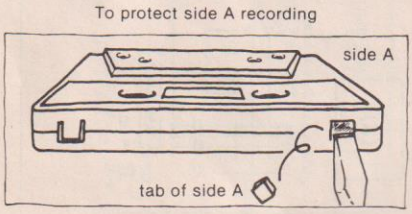
- The tape deck is stacked on or under the amplifier. Separate the units.
- If the TV set and the audio components are too close together, do not use both TV set and audio components at the same time. If both are used at the same time, separate the TV set from the audio components.

NOTES ON CASSETTES

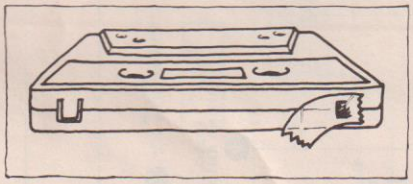
Cassette insertion
Before inserting a cassette, take up any slack in the tape to prevent it from becoming tangled around the capstan.



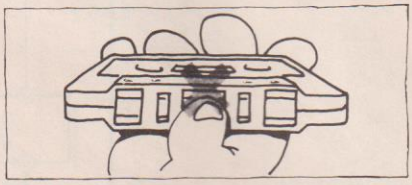
To protect cassettes from accidental erasure
Remove the tab as illustrated so that the record mode does not function when the record button is pressed.



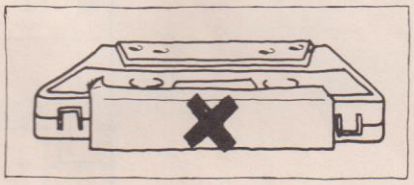
To record on a cassette once tabs have been removed, simply cover the slot with plastic tape.



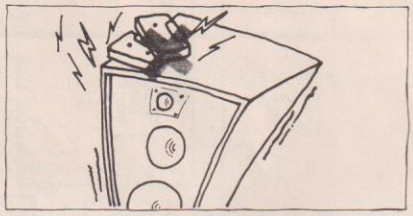
Cassette care
●Avoid touching the tape surface of a cassette, as any dirt or dust will contaminate the heads.



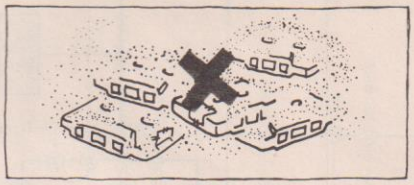
●Do not stick thick labels or tape on the cassette, as this may affect proper cassette alignment and prevent the tape from making proper contact with the heads.



●Keep cassettes away from equipment with magnets, such as speakers and amplifiers, because their magnets could cause erasures or distortions of your recorded tapes.



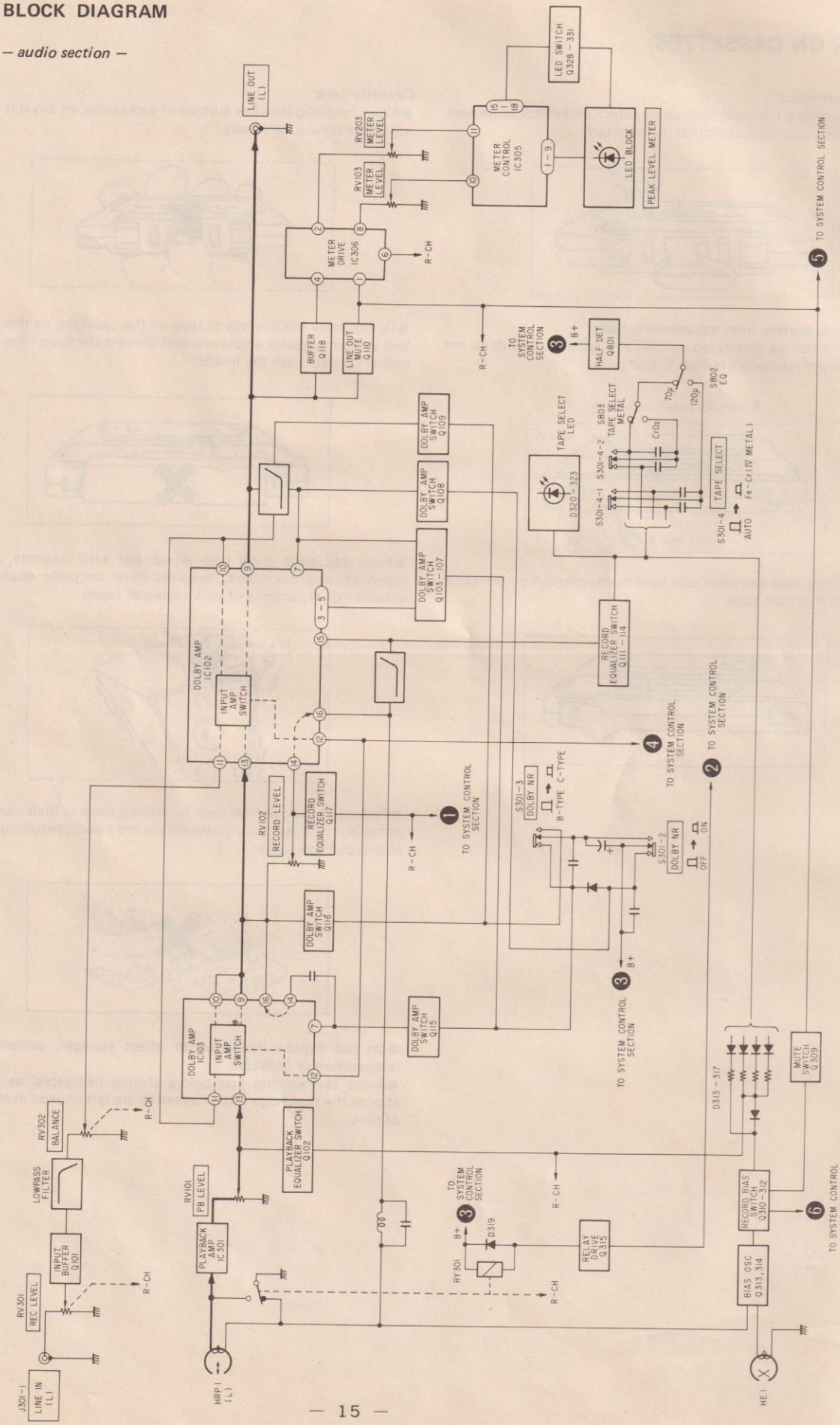
●Protect cassettes from dust by storing them in their cases. Even minor dirt or dust could contaminate the heads, resulting in noise and sound drop-outs.



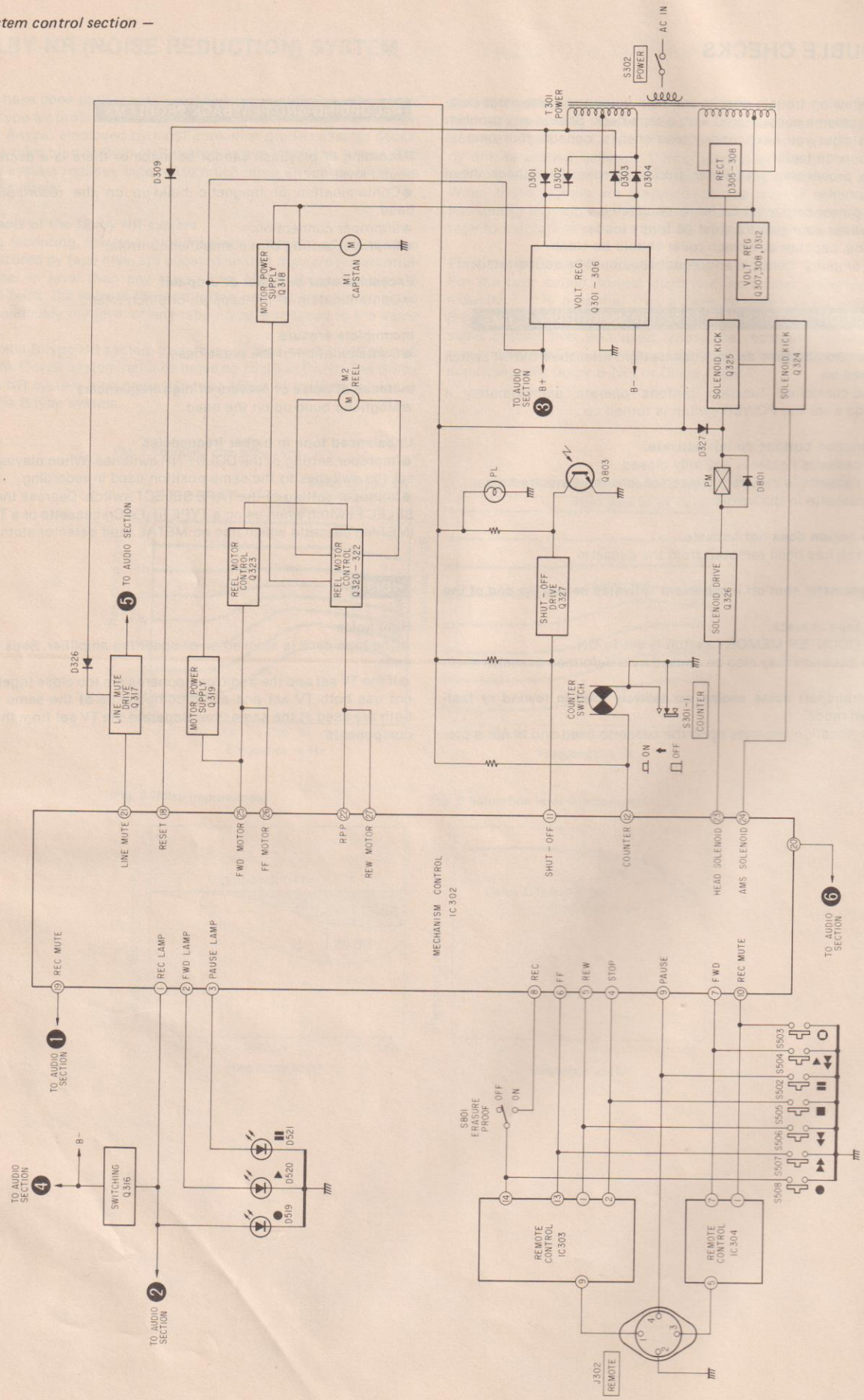
●Do not expose cassettes to direct sunlight, extremely cold temperature or moisture.
●Avoid fast-winding just before storing cassettes, as this may stretch the tape edge if the cassettes are left unused over a period of time.

1-2. BLOCK DIAGRAM

– audio section –



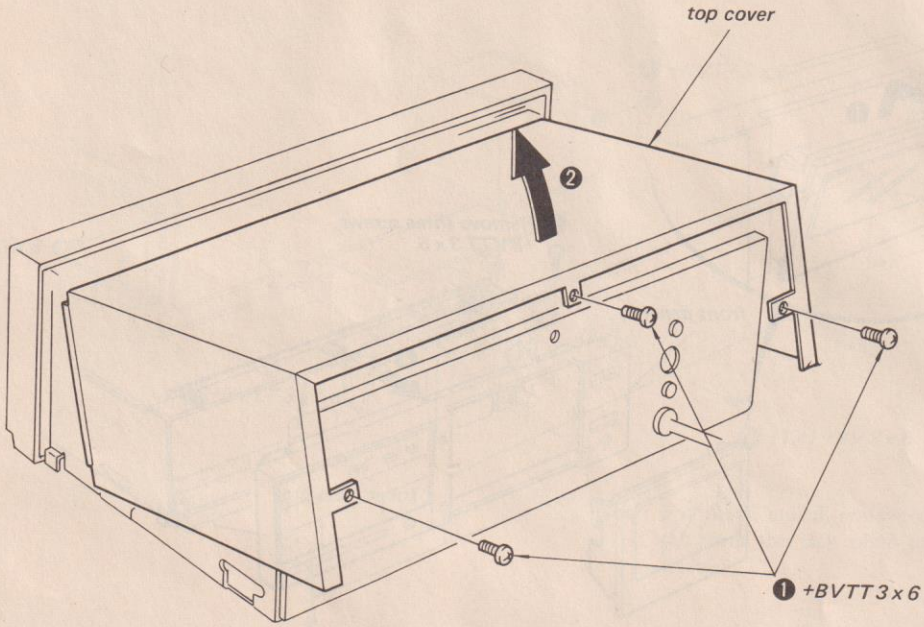
— system control section —



SECTION 2
DISASSEMBLY

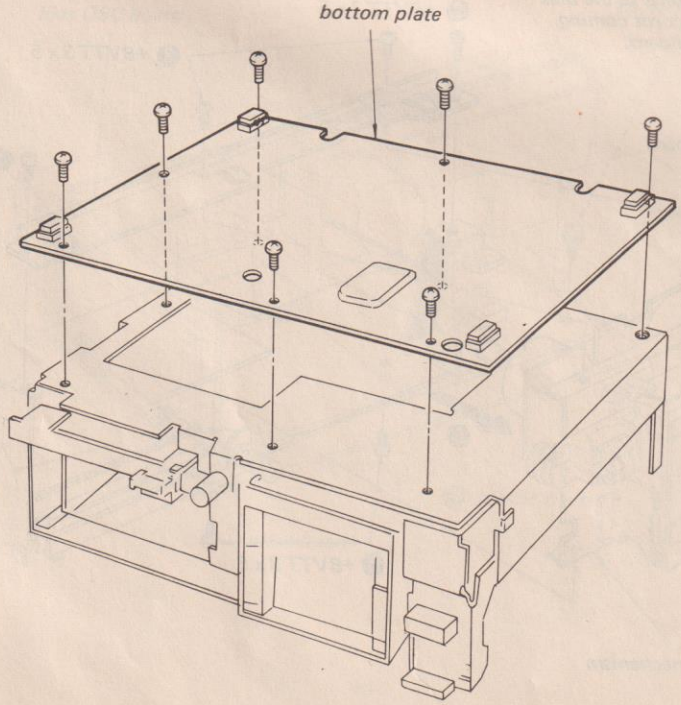
Note: Follow the disassembly procedure in the numerical order given.

TOP COVER



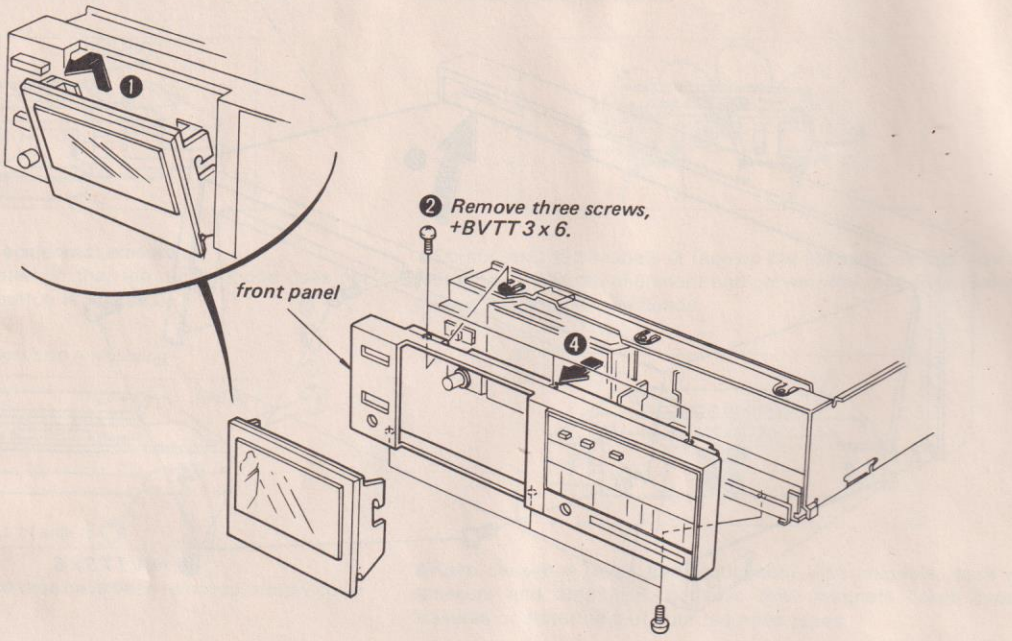
BOTTOM PLATE

Remove seven screws, +BVTT3x6.



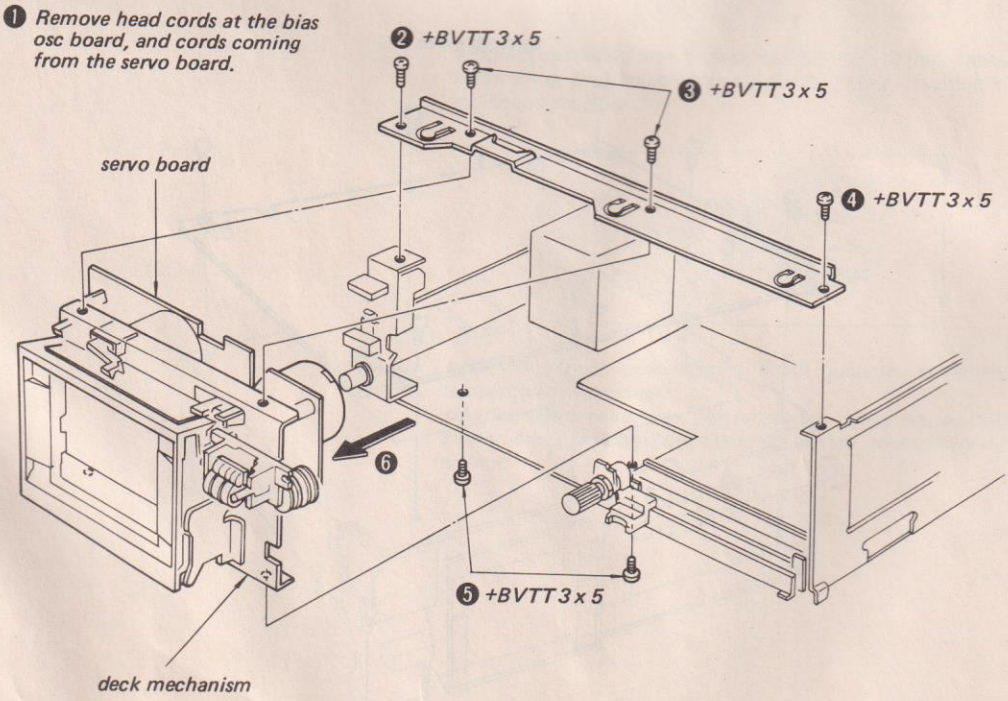
FRONT PANEL

❶ *Remove cassette lid under eject mode.*

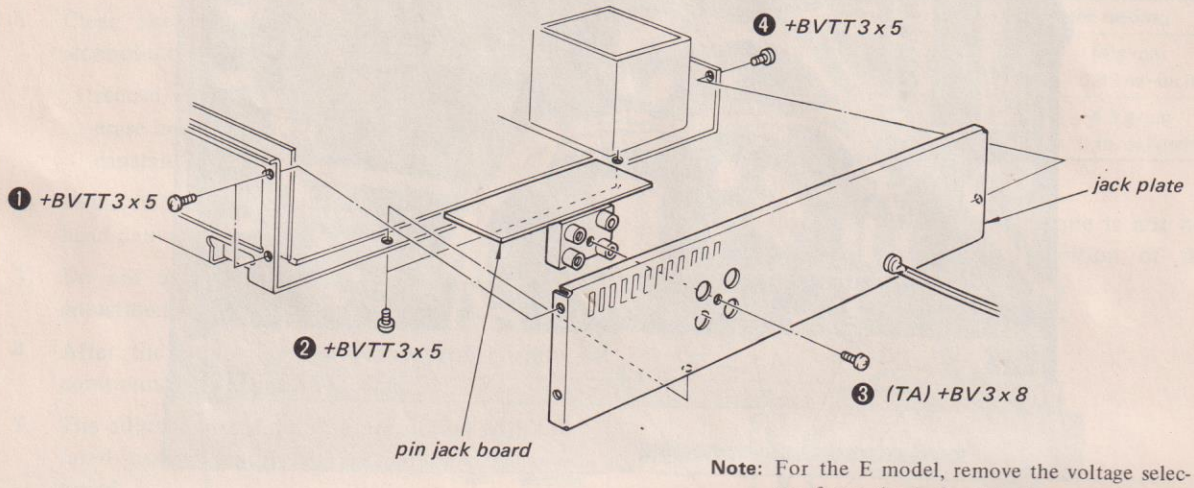


DECK MECHANISM

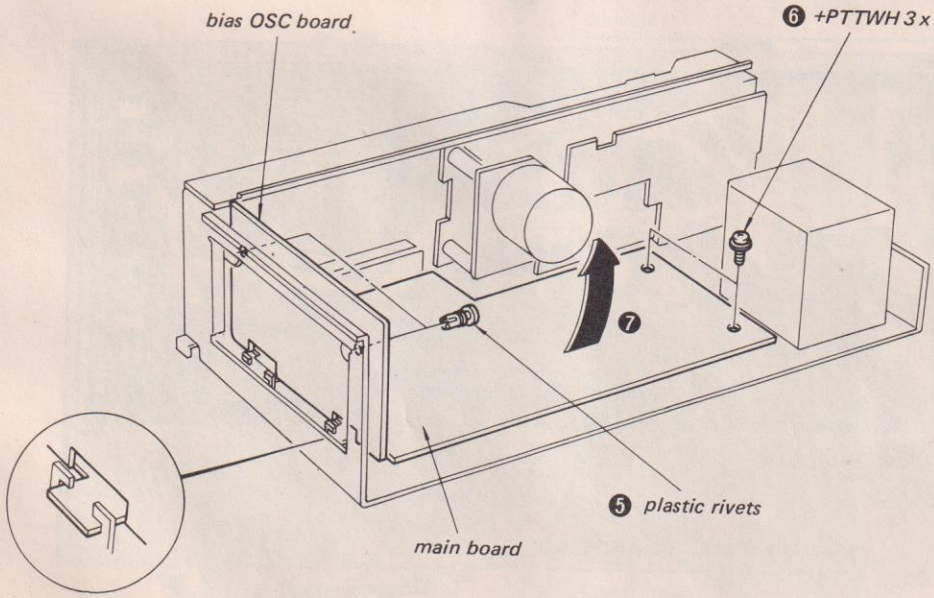
❶ *Remove head cords at the bias osc board, and cords coming from the servo board.*



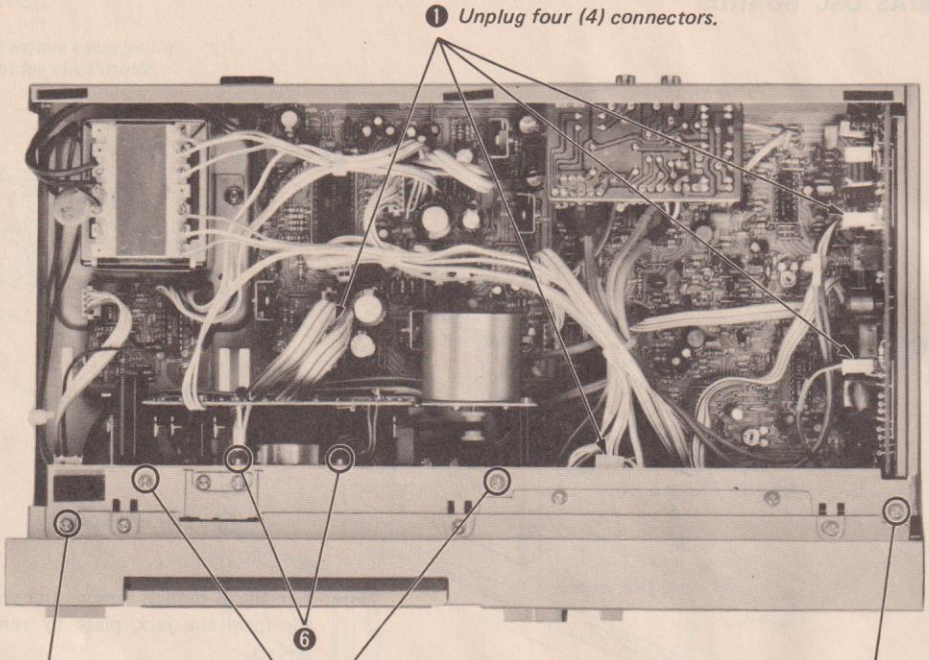
MAIN AND BIAS OSC BOARDS



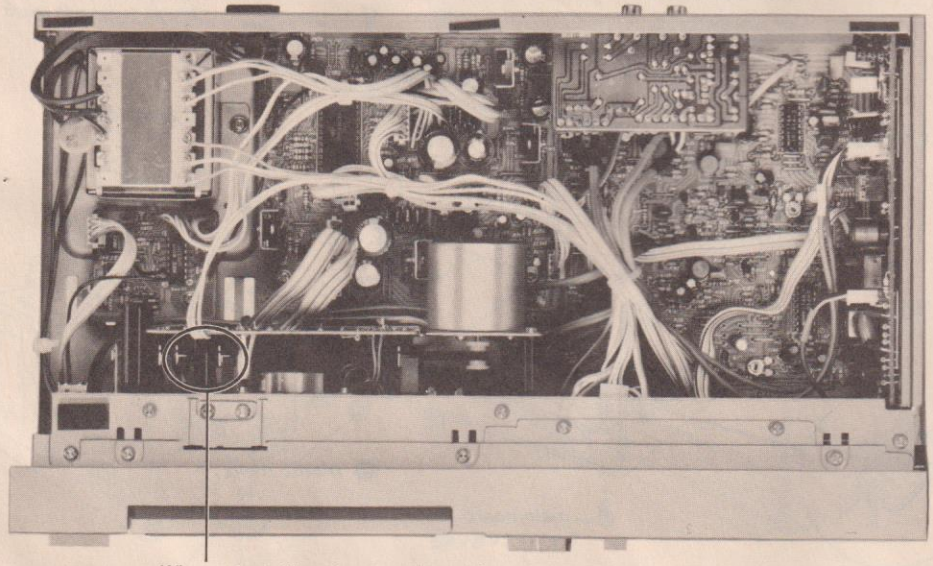
Note: For the E model, remove the voltage selector from the jack plate by removing two screws.



DECK MECHANISM


❶ Unplug four (4) connectors.
❸ Remove one screw, +BVTT3x5.
❷ Remove four (4) screws, +BVTT3x5 from top and bottom.
❹ Remove one (1) screw, +BVTT3x5.
❺ Displace top beam and remove deck mechanism upwards.

Note: When the reel motor is to be removed, remove two screws at ❻ .



When reinstalling the servo board, be sure to place tips of the tape-select levers on the top of the moving element of the two slide switches.
Do not break the levers and slide switches.

SECTION 3
ADJUSTMENTS

3-1. MECHANICAL ADJUSTMENTS

PRECAUTION

1. Clean the following parts with a denatured-alcohol-moistened swab:

record/playback head	pinch roller
erase head	rubber belts
capstan	idlers

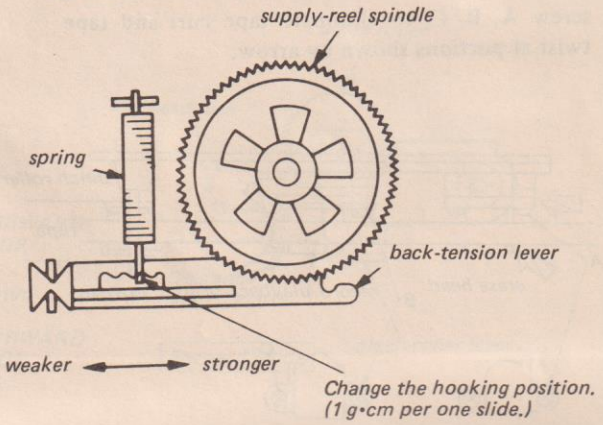
2. Demagnetize the record/playback head with a head demagnetizer.
3. Do not use a magnetized screwdriver for the adjustments.
4. After the adjustments, apply suitable locking compound to the parts adjusted.
5. The adjustments should be performed with the rated power supply voltage unless otherwise noted.

Torque Measurement and Back Tension Torque Adjustment

1.

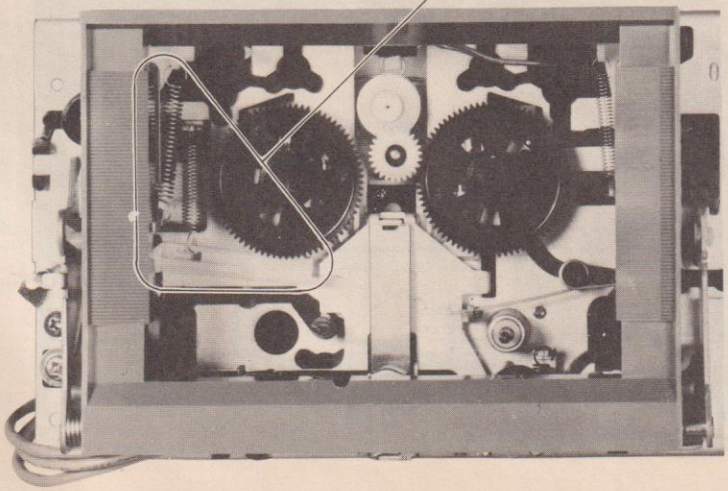
Torque	Torque meter	Meter reading
Forward	CQ-102C	30 – 60 g•cm (0.42 – 0.83 oz•inch)
Back tension	CQ-102C	2.5 – 4.5 g•cm (0.04 – 0.06 oz•inch)

2. If the specified back-tension torque is not obtained, change the hooking position of the spring.



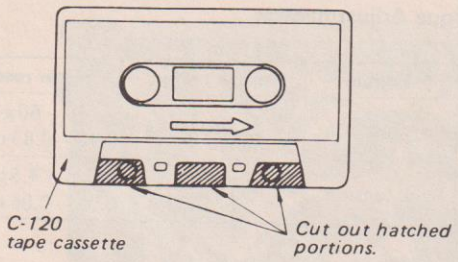
3.

Torque	Torque meter	Meter reading
Fast Forward, Rewind	CQ-201B	110 – 165 g•cm (1.53 – 2.3 oz•inch)

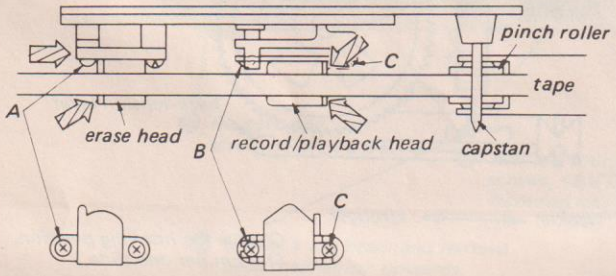


Head Height Adjustment

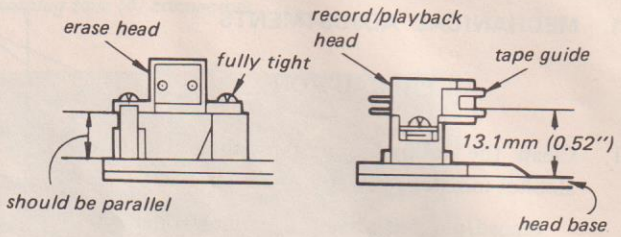
1. Prepare an adjustment cassette as shown below.

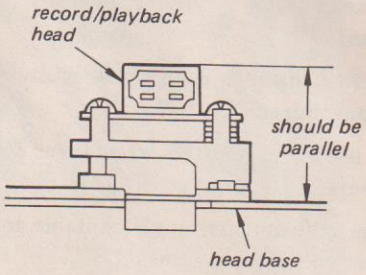


2. In playback mode and viewing from the front, adjust the head heights by using the adjustment screw A, B, C, to eliminate tape curl and tape twist at portions shown by arrow.



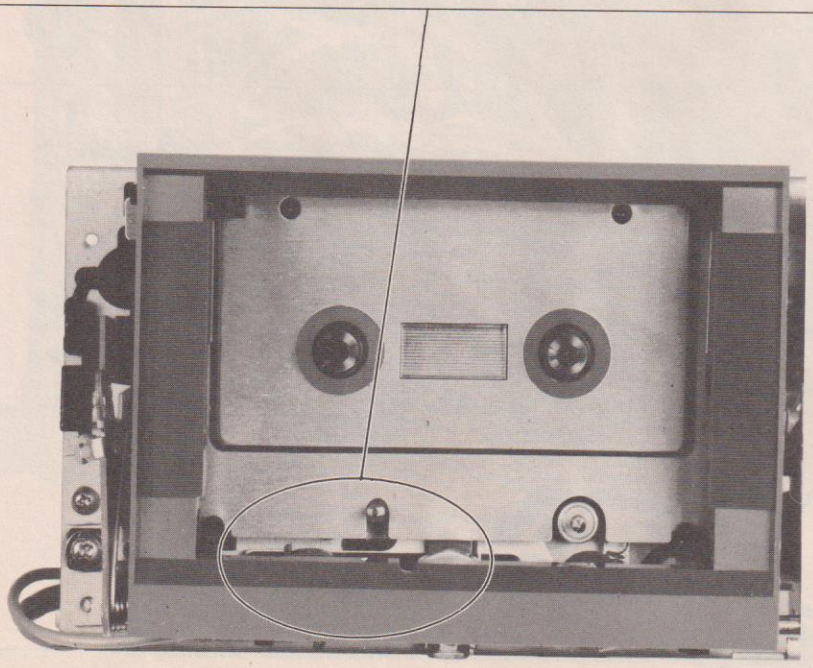
Position Checking after Adjustment





Operation Check after Adjustment:

1. Put the set in playback mode with tape cassette installed. No abnormal tape noise and tape slack should be observed.
2. Put the set in fast-forward and rewind modes alternately three times. Both modes should be made securely without abnormal noise.
3. Put the set in playback mode. Switch "pause" on and off successively three times and check for no abnormal tape slack, tape travel or cassette half's hunting.
4. Mechanism should shuts off at the tape end in playback mode.

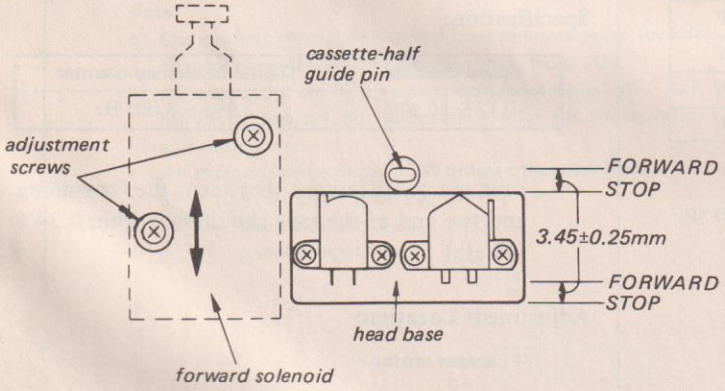


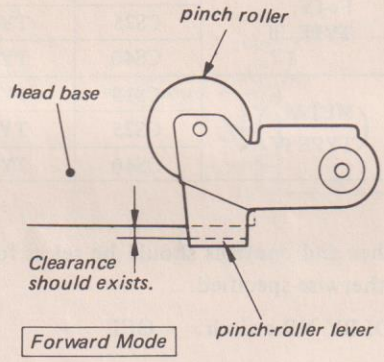
Forward-solenoid Position Adjustment

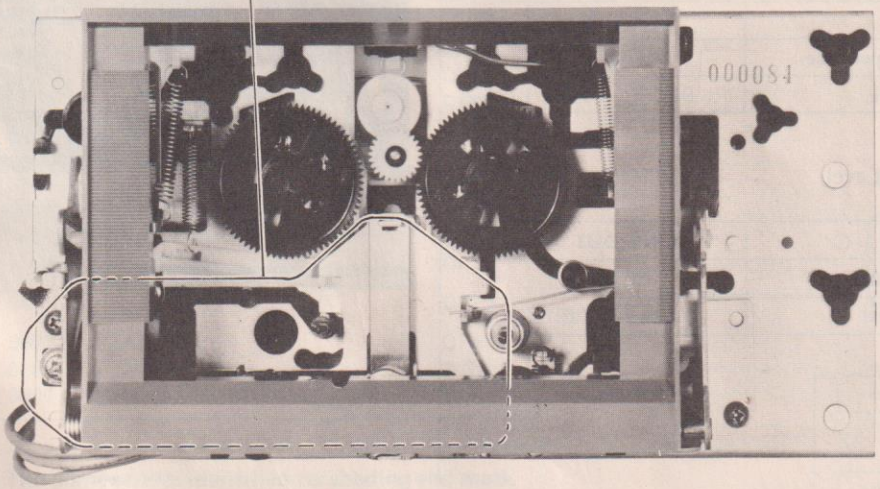
1. Loosen the adjustment screws.
2. Without a tape cassette installed, put the set in forward and stop modes successively by pushing the cassette-half detection lever.
3. Adjust the position of the forward solenoid so that the head base moves in 3.45±0.25mm upwards when the mode is changed from stop to forward.
4. After the adjustment, tighten the screws and apply suitable locking compound to them.

Associated Checks:

In forward mode, a clearance should exist between the bottom edge of the head base and pinch-roller lever.







3-2. ELECTRICAL ADJUSTMENTS

Note: The adjustment should be performed in the order given in this service manual.
The adjustments should be performed for both L-CH and R-CH.

- Set the TAPE SELECT switch according to the tape as follows.

Setting	Tape	LED Lighting
AUTO	CS15	TYPE I
	CS25	TYPE II
	CS40	TYPE IV
Fe-Cr TYPE III	CS15	TYPE III
	CS25	TYPE II
	CS40	TYPE IV
(METAL TYPE IV)	CS15	TYPE IV
	CS25	TYPE IV
	CS40	TYPE IV

- Switches and controls should be set as follows unless otherwise specified.

  DOLBY NR switch: OFF

- Standard Record:

  Deliver the standard input signal level to the input jack and set the REC LEVEL control to obtain the standard output signal level.

Standard Input Level

	LINE IN
source impedance	50 kΩ
input level	0.25 V (–10 dB)

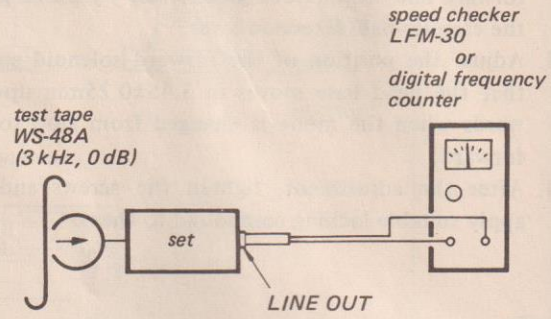
Standard Output Level

	LINE OUT
load impedance	50 kΩ
output level	0.435 V (–5 dB)

Tape Speed Adjustment

Procedure:

Mode: playback



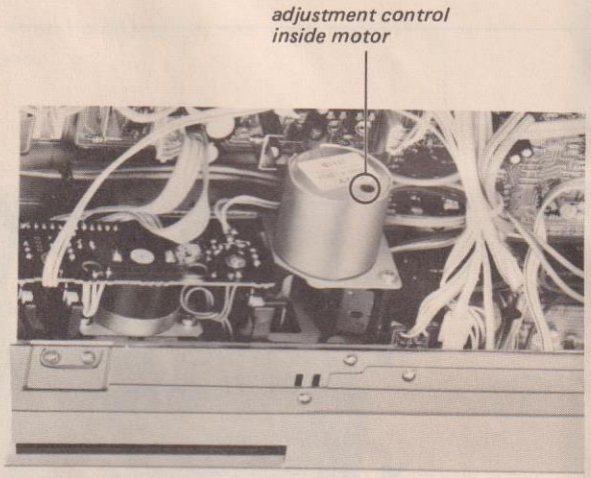
Specification:

Speed checker	Digital frequency counter
–0.17 ~ +0.17%	2,995 ~ 3,005 Hz

Frequency difference between the beginning and the end of the tape should be within 0.34% (10 Hz).

Adjustment Location:

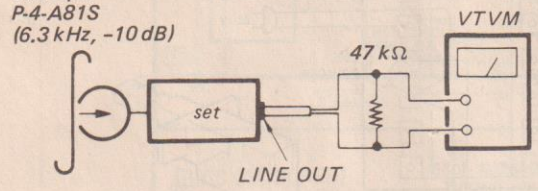
– capstan motor –



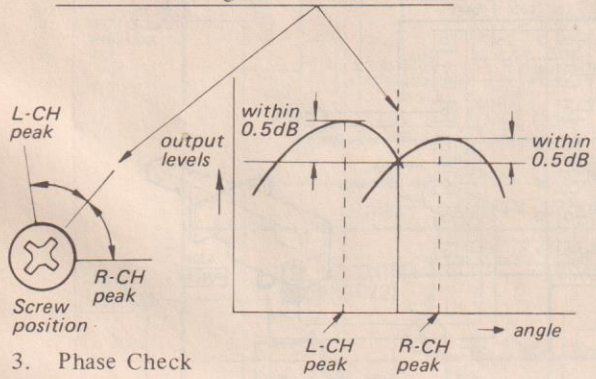
Record/playback Head Azimuth Adjustment

Procedure:

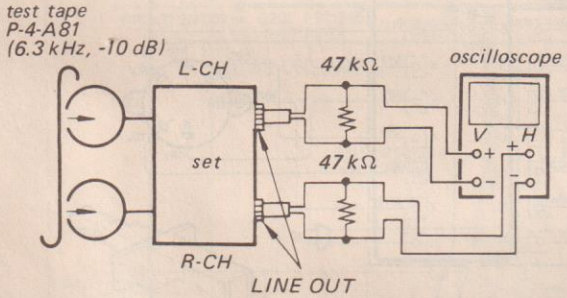
1. Mode: Playback

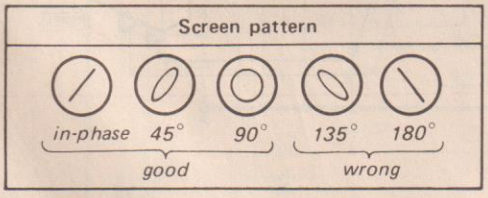


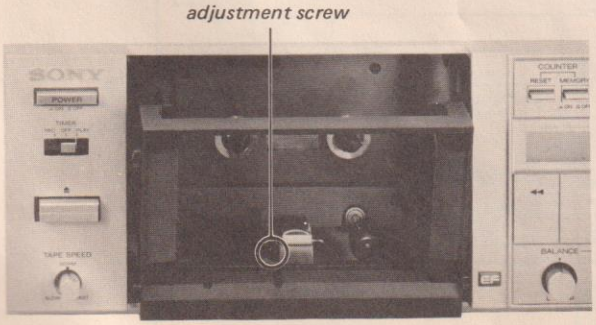
2. Turn the adjustment screw for the maximum output levels. If these levels do not match, turn the adjustment screw until both of output levels match together within 0.5 dB.



3. Phase Check
   Mode: playback



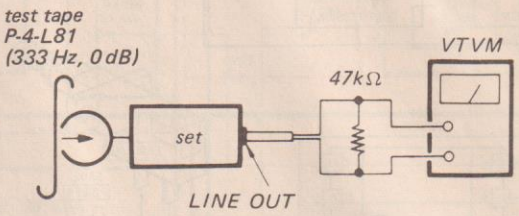




Playback Level Adjustment

Procedure:

Mode: playback



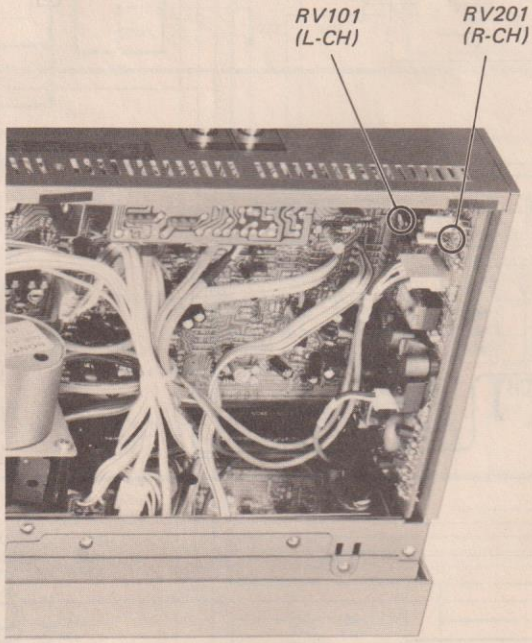
Specification:

LINE OUT level: 0.52–0.59 V
(-3.5 – -2.5 dB)
Level difference between channels:
less than 0.5 dB

Check that the LINE OUT level does not change in playback mode while changing the mode from playback to stop several times.

Adjustment Location:

– bias osc board –



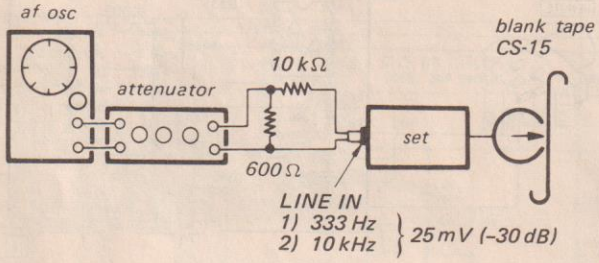
Record Bias Adjustment

Setting:

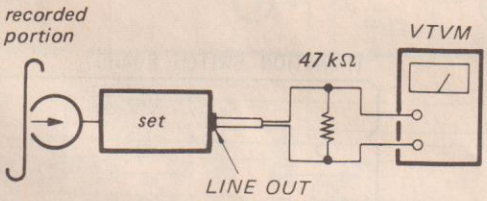
REC LEVEL control: standard record
(See page 24.)

Procedure:

1. Mode: record



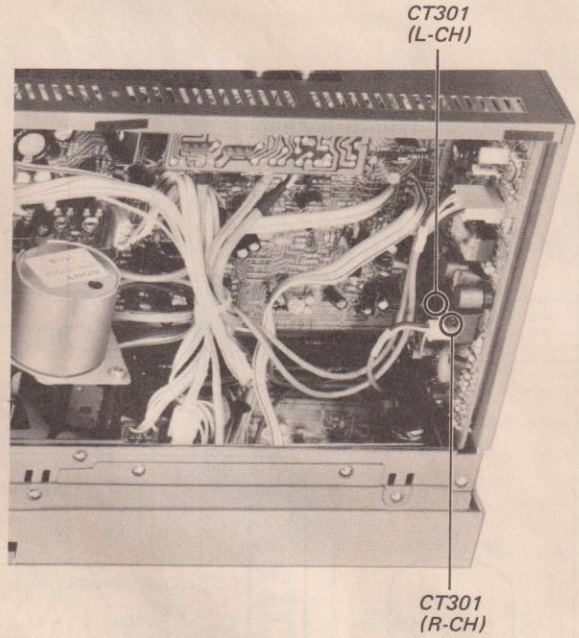
2. Mode: playback



Adjust CT301 (L-CH) and CT301 (R-CH) so that the LINE OUT level of 10 kHz signal is +0.5 dB relative to that of 333 Hz.

Adjustment Location:

– bias osc board –



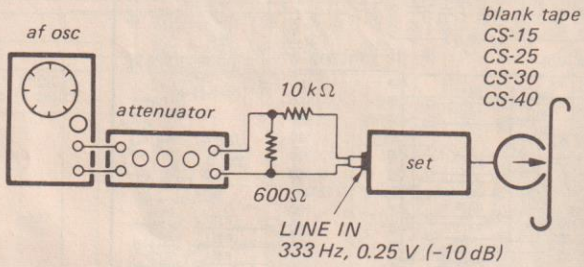
Record Level Adjustment

Setting:

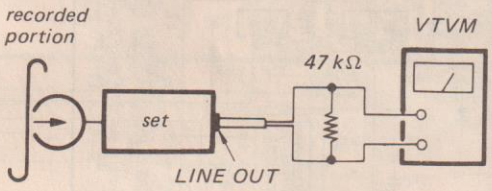
REC LEVEL control: standard record
(See page 24.)

Procedure:

1. Mode: record



2. Mode: playback

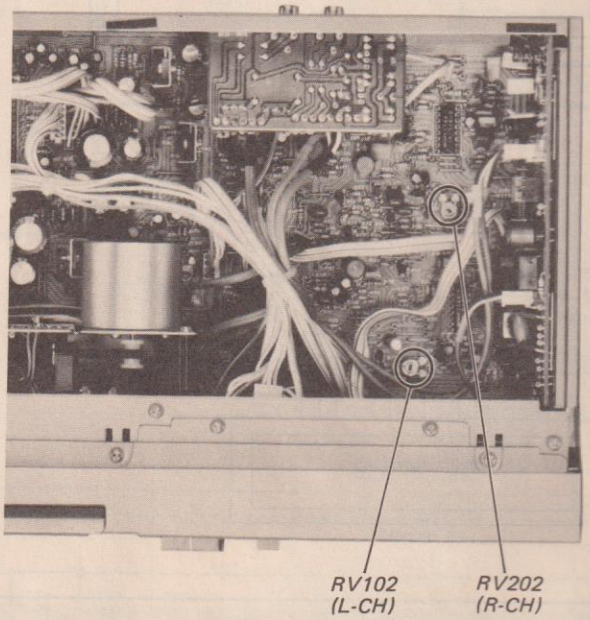


Specification:

LINE OUT level: CS15: 0.41 – 0.46 V (-5.5 – -4.5 dB)
CS-25, CS-30, CS40: 0.37 – 0.52 V (-6.5 – -3.5 dB)

Adjustment Location:

– main board –

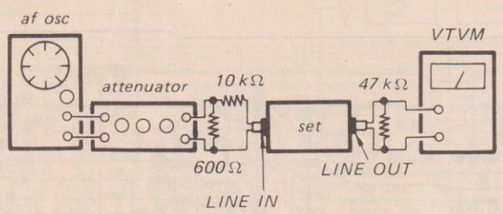


TC-YX50

Level Meter Calibration

Procedure:

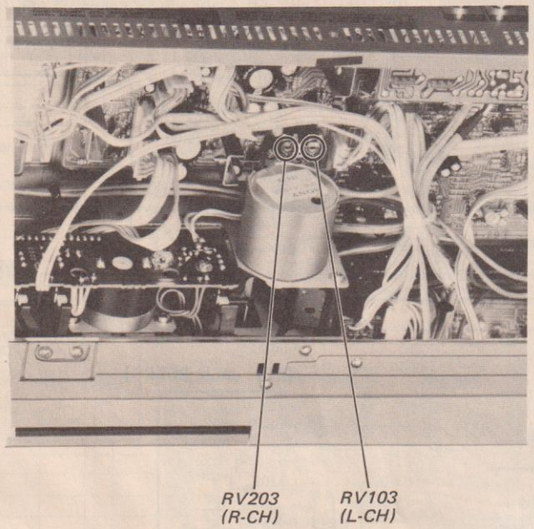
1. Mode: record



1. Set the REC LEVEL control so that the LINE OUT level is –7 dB.
2. Adjust RV103 (L-CH) and RV203 (R-CH) so that the LEDs including 8 dB (right-most element) light up.
3. Adjust REC LEVEL control to obtain 0.44 V (–5 dB) VTVM reading.
   PEAK PROGRAM METER should read –4 dB (0 VU).

Adjustment Location

– main board –

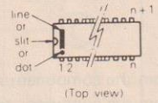


IC302's TERMINAL NAME, WAVEFORM AND/OR VOLTAGES

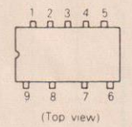
PIN No.	WAVEFORM AND/OR VOLTAGES
①	● *lamp drive* *record mode : DC 4.5V* *stop mode : DC 0V*
②	▶ *lamp drive* *record and forward modes : DC 4.5V* *stop mode : DC 0V*
③	❚❚ *lamp drive* *pause mode : DC 4.6V* *pause mode : DC 0V*
④	■ *switch input (STOP)* DC 5.2V / 0V *stop button kept pressed : DC 0V*
⑤	◀◀ *switch input (REWIND)* DC 5.2V / 0V *rewind button kept pressed* *stop mode : DC 4V*
⑥	▶▶ *switch input (FAST FORWARD)* DC 5.2V / 0V *fast-forward button kept pressed* *stop mode : DC 0V*
⑦	▶ *switch input (FORWARD)* DC 5.2V / DC 0.4V *forward button kept pressed*
⑧	● *switch input (RECORD)* DC 5.2V / DC 0.8V *record button kept pressed* *stop mode : DC 4.6V*
⑨	❚❚ *switch input (PAUSE)* DC 5.2V / DC 0.8V *pause button kept pressed* *stop mode : DC 5.2V*
⑩	▣ *switch input (RECORD MUTING)* DC 5.2V / DC 0.8V *REC MUTE button kept pressed* *stop mode : DC 5.2V*
⑪	*Auto Shut-Off Signal* DC 5.2V / 0V *0.2sec* *2 sec* *auto shut off* *becomes in stop mode at tape end in forward mode (may become in 0V according to the position of take-up reel spindle)*
⑫	*tape counter "999" input (COUNTER)* *DC 4.8V*
⑬	*Clock Signal* *DC 1.6V* *1.1Vp-p* *8msec*
⑭	*GND (ground)*
⑮	*AMS signal* *DC 4.7V*
⑯	*AMS-Mode Signal (AMS)* *DC 3.5V*
⑰	*Timer Signal (TIMER)* DC 5.2V / 0V *4sec* *0.5sec* *POWER Switch ON (regardless of position of TIMER switch)*
⑱	*Reset Signal (RESET)* *DC 4V*
⑲	*Record-Muting Signal* DC 5.1V / 0V *pause switch OFF* *REC MUTE switch ON in record mode*
⑳	*Bias Signal* DC 5.2V / 0V *record switch ON* *pause switch OFF* *pause switch ON*
㉑	*Line-Muting Signal* DC 5.2V / DC 0.4V *forward switch ON* *pause switch ON* *pause switch OFF* DC 5.2V / 0V *record mode made or only record switch ON*
㉒	*R.P.P. Signal* DC 5V / 0V *31.25msec* *pause switch ON in record mode*
㉓	*Head-Solenoid Drive Signal* DC 4.7V / 0V *pause switch ON* *record or forward switch ON* *pause switch OFF* *stop mode : DC 0V*
㉔	*AMS-Solenoid Drive Signal* DC 4.7V / 0V *0.25sec* *pause switch OFF* *record or forward switch ON* *stop mode : DC 0V*
㉕	*Reel-Motor Drive Signal in Forward Mode* DC 4.8V / 0V *pause switch ON* *pause switch OFF* *record or forward switch ON* *stop mode : DC 0V* *fast-forward mode : DC 0.3V*
㉖	*Reel-Motor Drive Signal in Fast-Forward Mode* *fast-forward mode: DC 4.8V* *record and forward modes : DC 0.3V* *stop and pause modes : DC 0V*
㉗	*Reel-Motor Drive Signal in Rewind Mode* *rewind mode : DC 4.8V* *stop mode : DC 0V*
㉘	*B+ Supply Voltage DC 5.2V*

● Semiconductor Lead Layouts

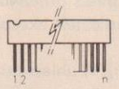
CX-174A
NJM4562D-D
MSM58361RS
NJM2903D
MSL9351



μPC339C

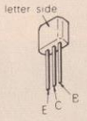


BA6138

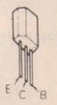


2SC1345
2SC1364
2SA1015

2SB808
2SD1012
2SD1020



2SA1026

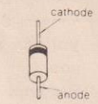


2SB731
2SD809

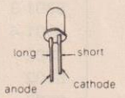
2SD880

PH102

1S1555
10E-2
HZ6B1L
HZ6C3L
HZ11C3L



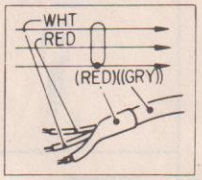
SEL1310E
AR3432S
EBG3432S
AA3432S



4-1. MOUNTING DIAGRAM

- See page 28 for semiconductor lead layouts.

– Conductor Side –



Note:

- Color code of sleeving over the end of the jacket.
- ○— : parts extracted from the component side.
- ●— : parts extracted from the conductor side.
- ■ : part mounted on the conductor side.
- [ ]— : indicates side identified with part number.
- : B + pattern
- : B – pattern
- : signal path
- : L-CH signal path
- : R-CH signal path

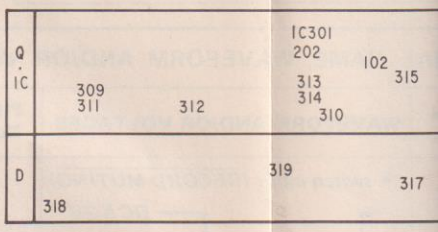
Note:

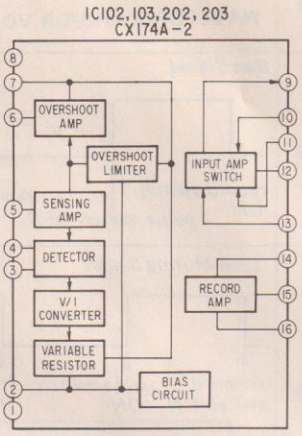
- Components for right channel have same values as for left channel. Reference numbers are coded from 200.
- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, 1/6 W unless otherwise noted. kΩ : 1000 Ω, MΩ : 1000 kΩ
- : fusible resistor.
- : panel designation.
- : B+ bus.
- : B– bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under no-signal conditions with a VOM (50 kΩ/V).
- Voltage variations may be noted due to normal production tolerances.
- Switches

Ref. No.	Switch	Position
S301-1	COUNTER MEMORY	OFF
S301-2	DOLBY NR	OFF
S301-3	DOLBY B/C	B-TYPE
S301-4	Ⅲ Fe-Cr	AUTO
S302	POWER	OFF
S502	PAUSE	OFF
S503	REC MUTING	OFF
S504	FORWARD	OFF
S505	STOP	OFF
S506	REWIND	OFF
S507	FAST FORWARD	OFF
S508	RECORD	OFF
S801	MISERASURE PREVENTION	OFF
S802	EQUALIZER	OFF
S803	TAPE	CrC_2
S804	HALF DETECTION	OFF

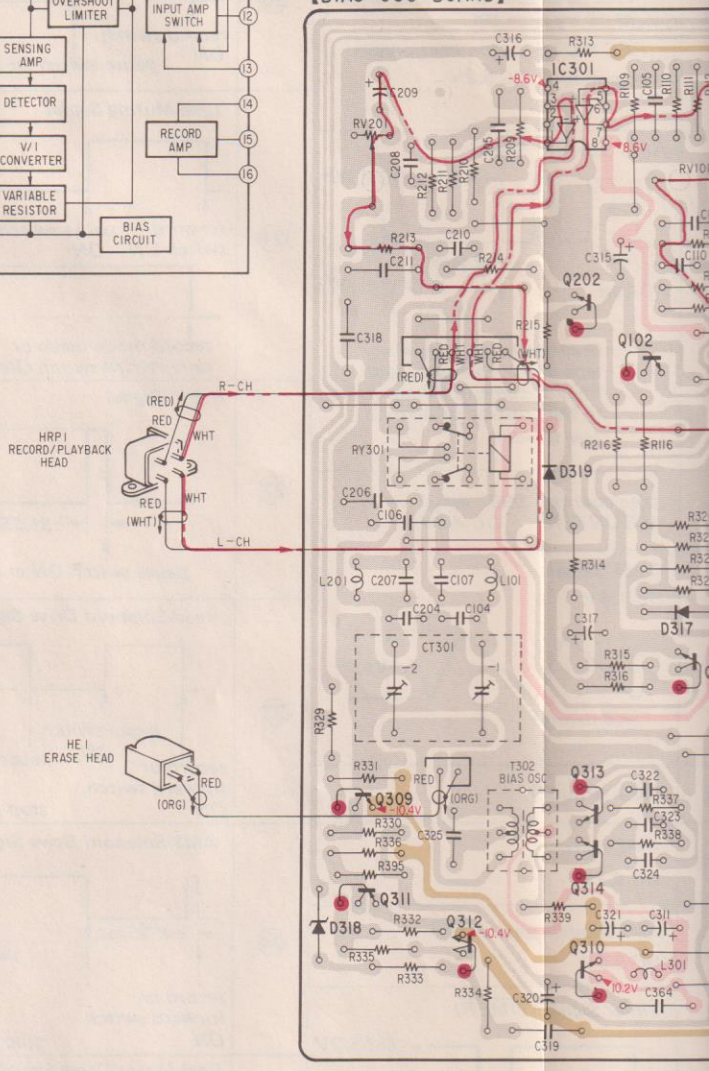
Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Note: Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

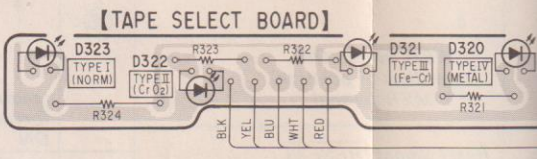


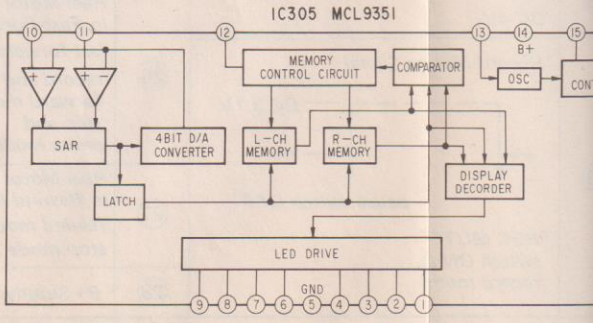


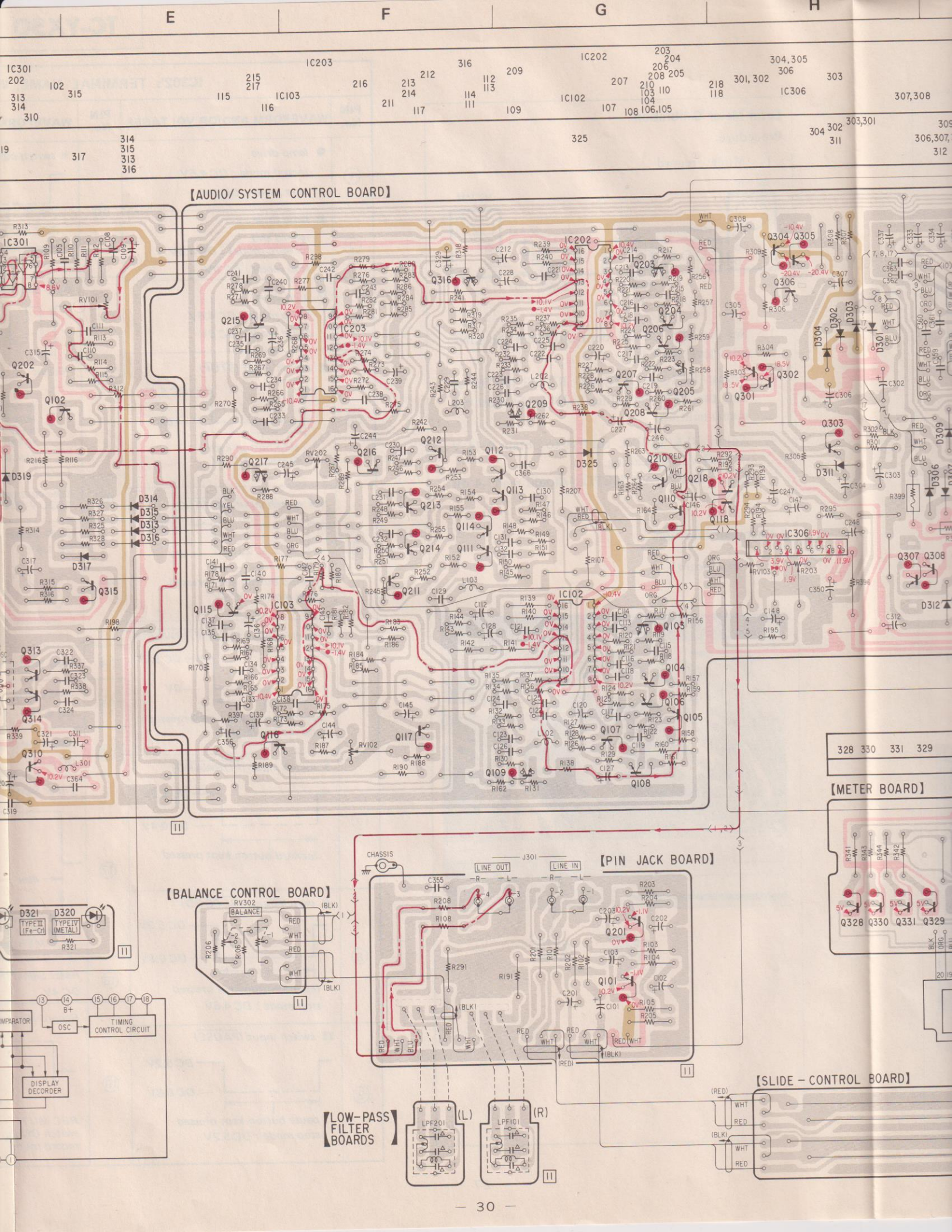
【BIAS OSC BOARD】



【TAPE SELECT BOARD】






E
F
G
H
【AUDIO/ SYSTEM CONTROL BOARD】
【METER BOARD】
【PIN JACK BOARD】
【BALANCE CONTROL BOARD】
【SLIDE－CONTROL BOARD】
【LOW-PASS FILTER BOARDS】
TIMING CONTROL CIRCUIT
OSC
DISPLAY DECORDER
CHASSIS
LINE OUT
LINE IN
BALANCE

303 307,308 IC302 324 317 319,325 322 323 321 318 326 327 320 Q·IC

302 303,301 311 309 310 306,307,308,305 312 327 326 D

MUTING
OUTPUT AMP

【REMOTE CONTROL BOARD】

J302 REMOTE

IC303 μPC339C

TAPE COUNTER
RED WHT
COUNTER SWITCH

【FUNCTION SWITCH BOARD】
S503 S502 S508 S507 D521 D519

IC305 328 330 331 329 201 101 Q·IC D

【METER BOARD】
D201 D101 IC305
Q328 Q330 Q331 Q329
PEAK LEVEL METER
LED BLOCK

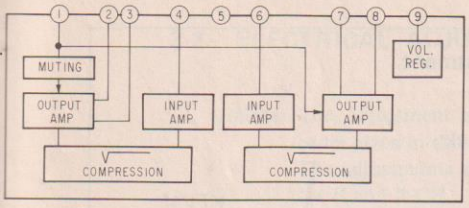
【PHOTO BOARD】
Q803 PL

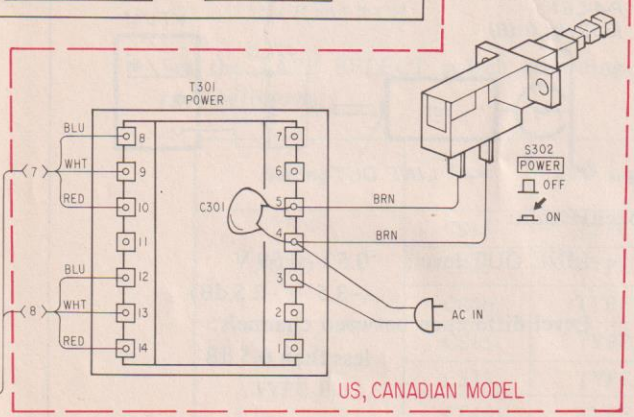
【MD BOARD】
M1 CAPSTAN MOTOR
S804 HALF DET
M2 REEL MOTOR
Q801
S803 TAPE SELE

【SELECT BOARD】

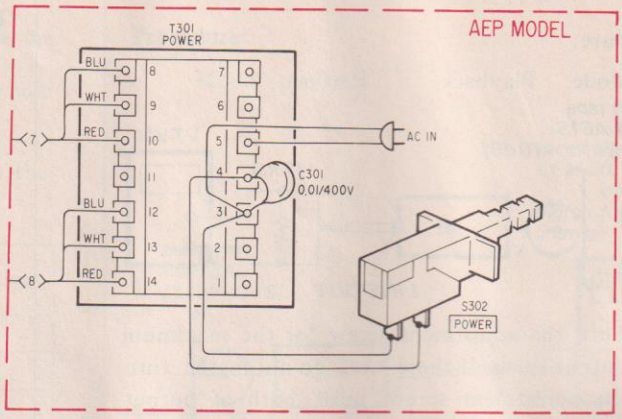
【OL BOARD】
RV301 REC LEVEL

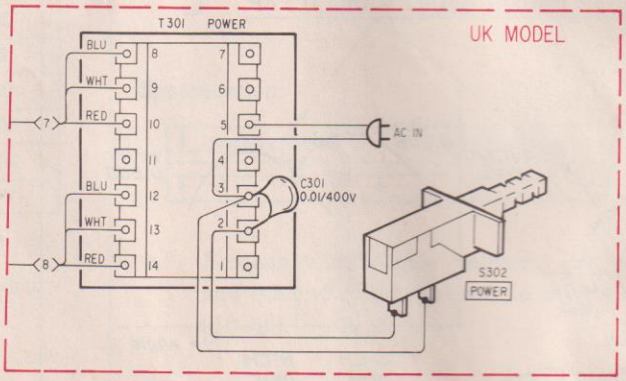
IC306 BA6138

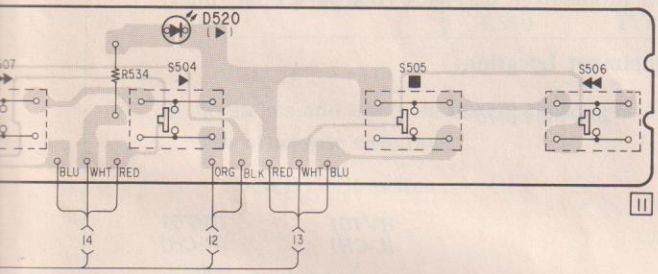


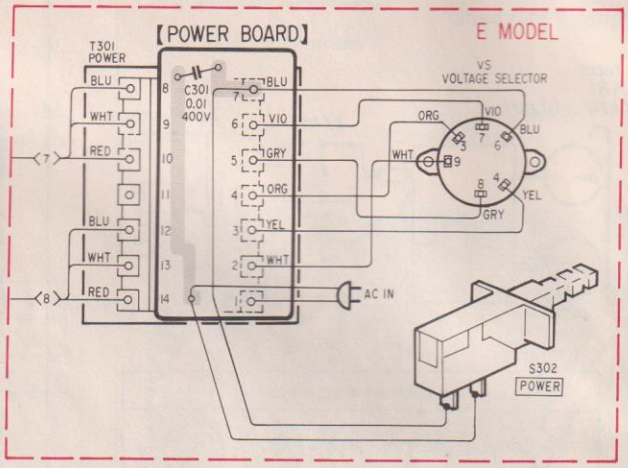


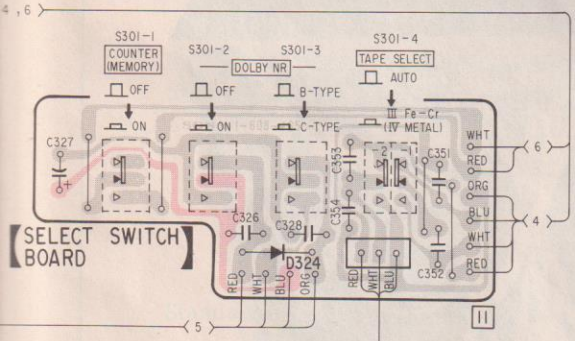
US, CANADIAN MODEL

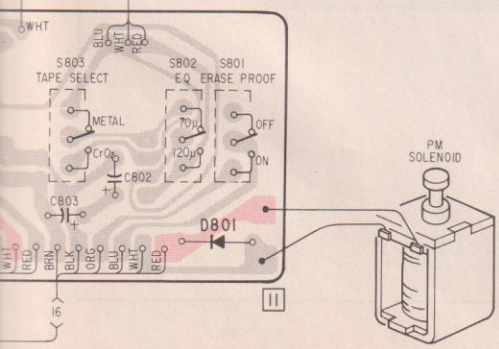






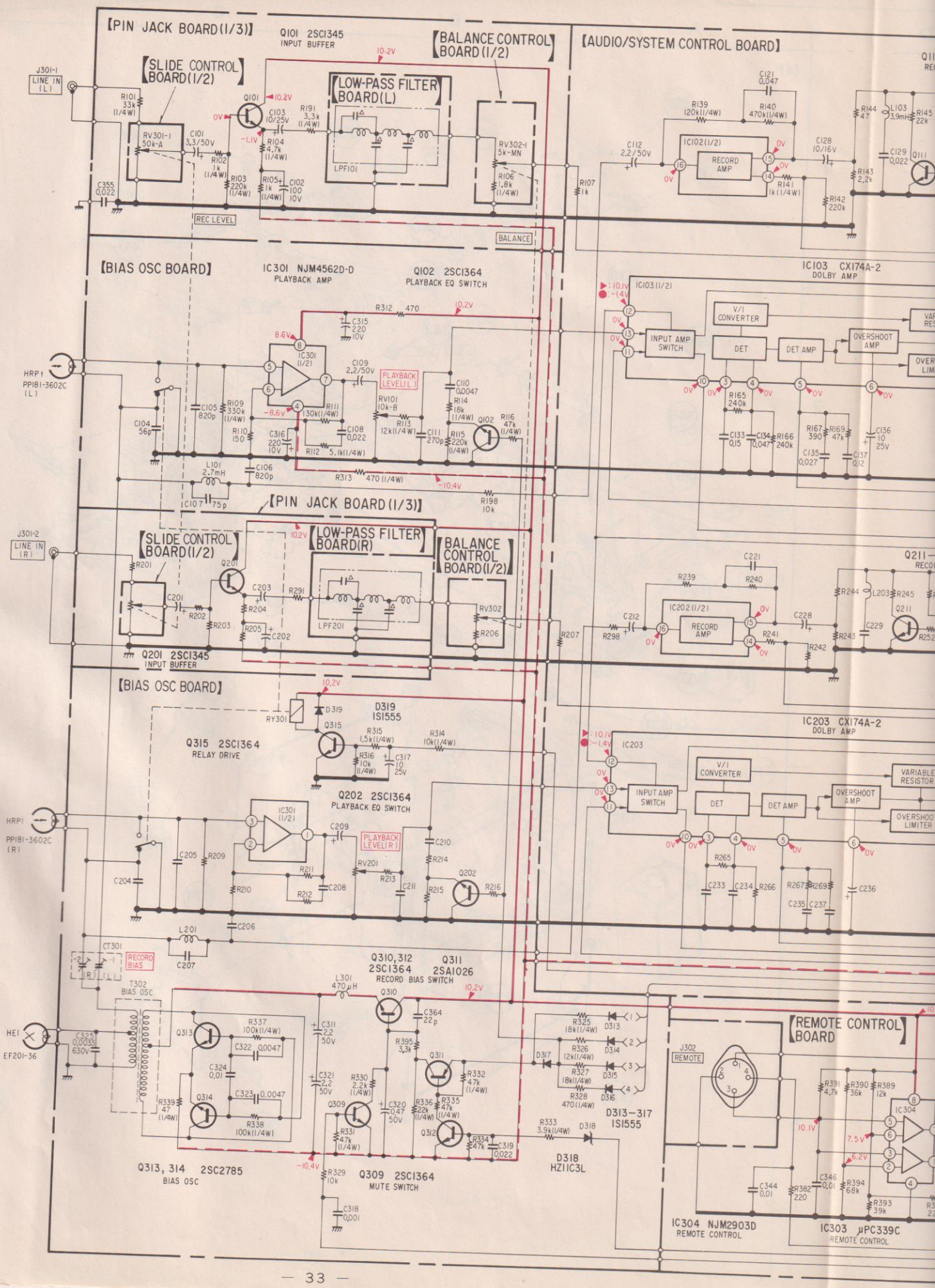


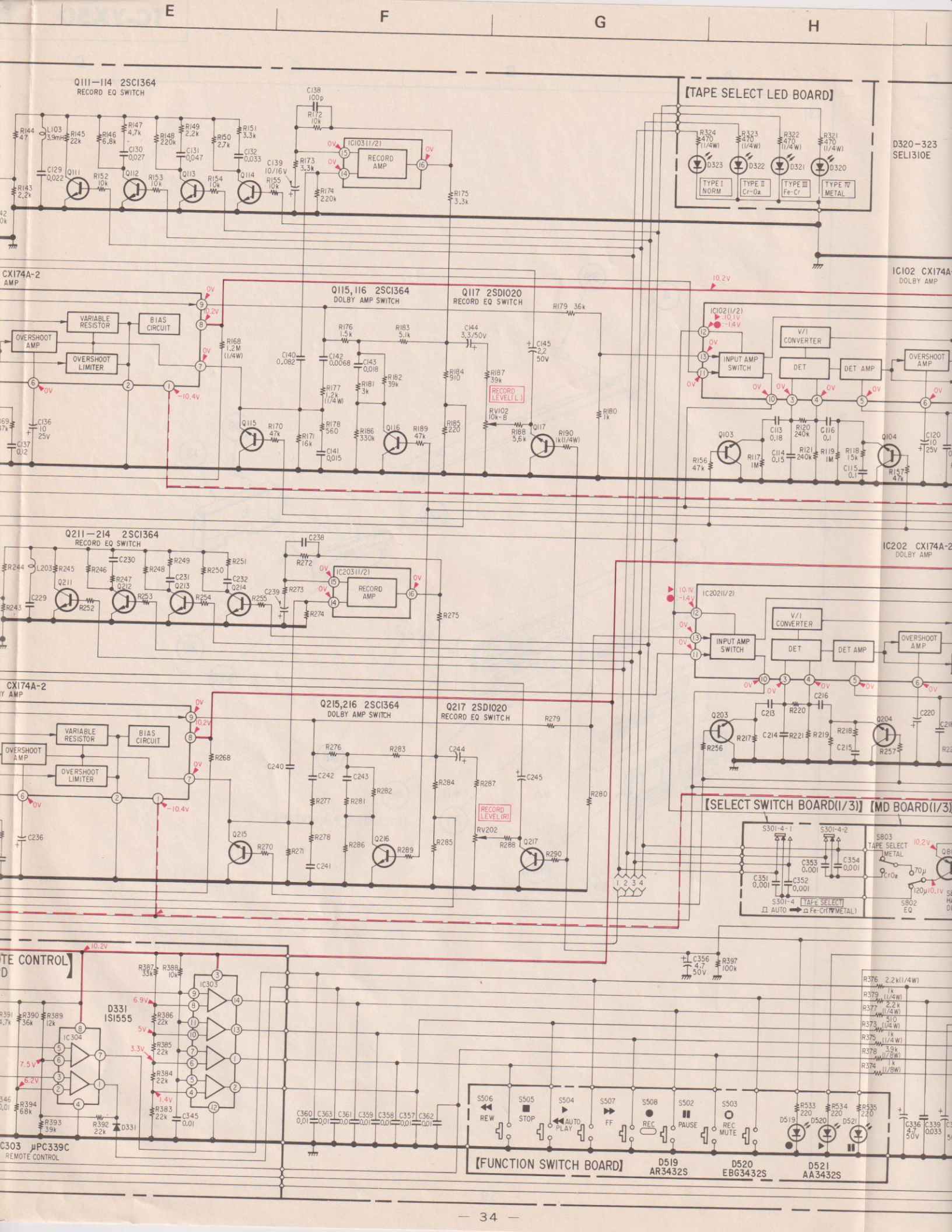


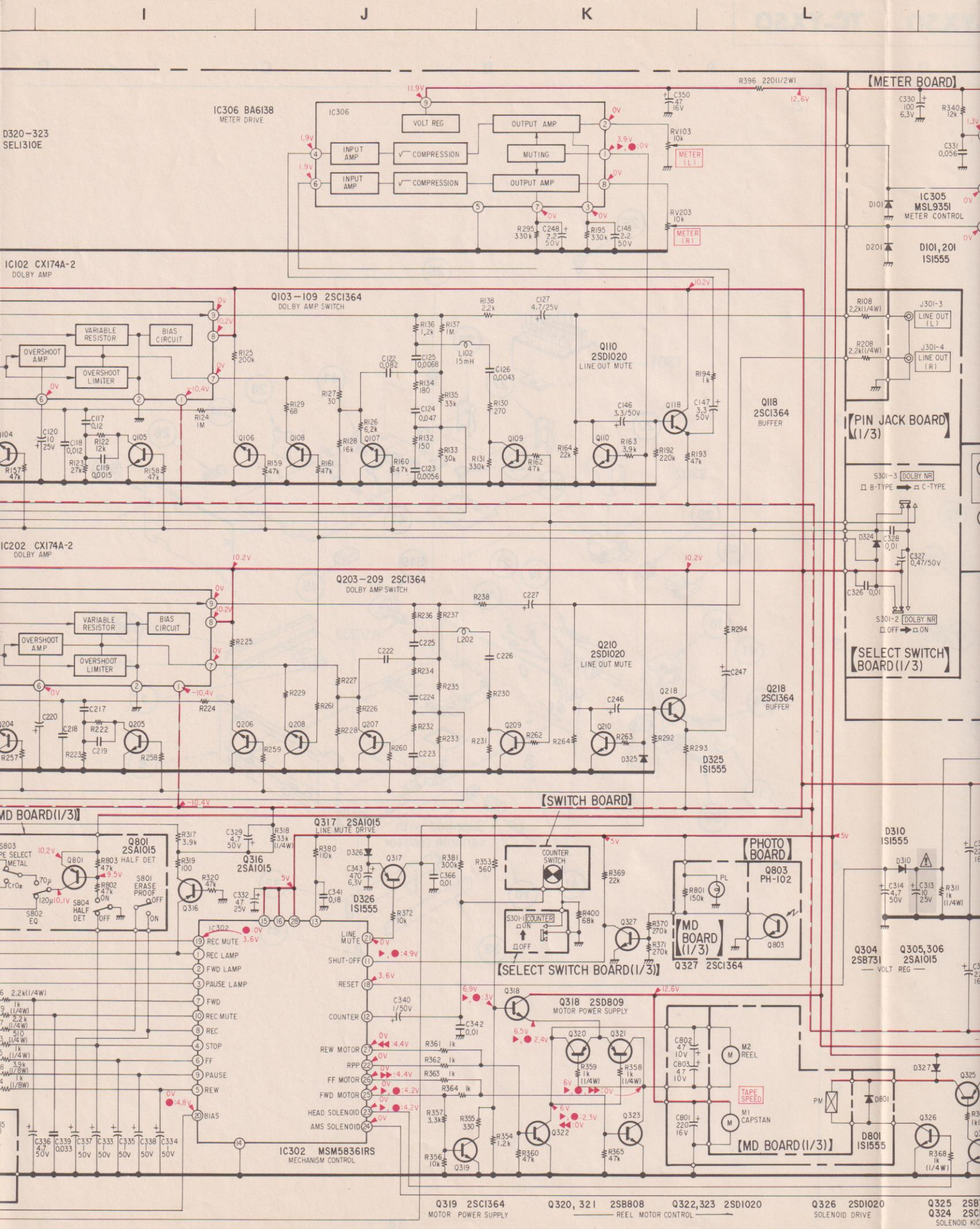


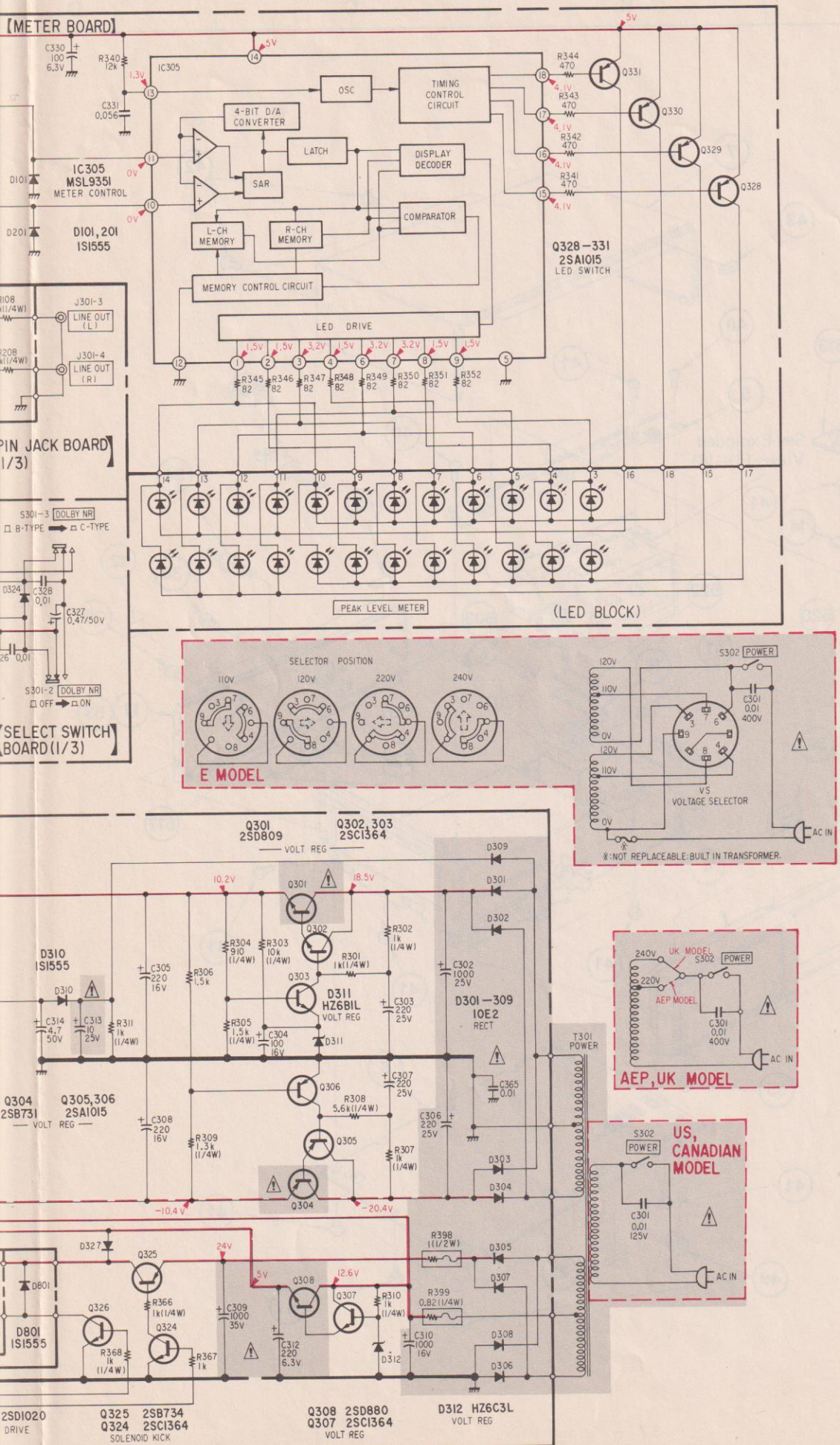
4-2. SCHEMATIC DIAGRAM

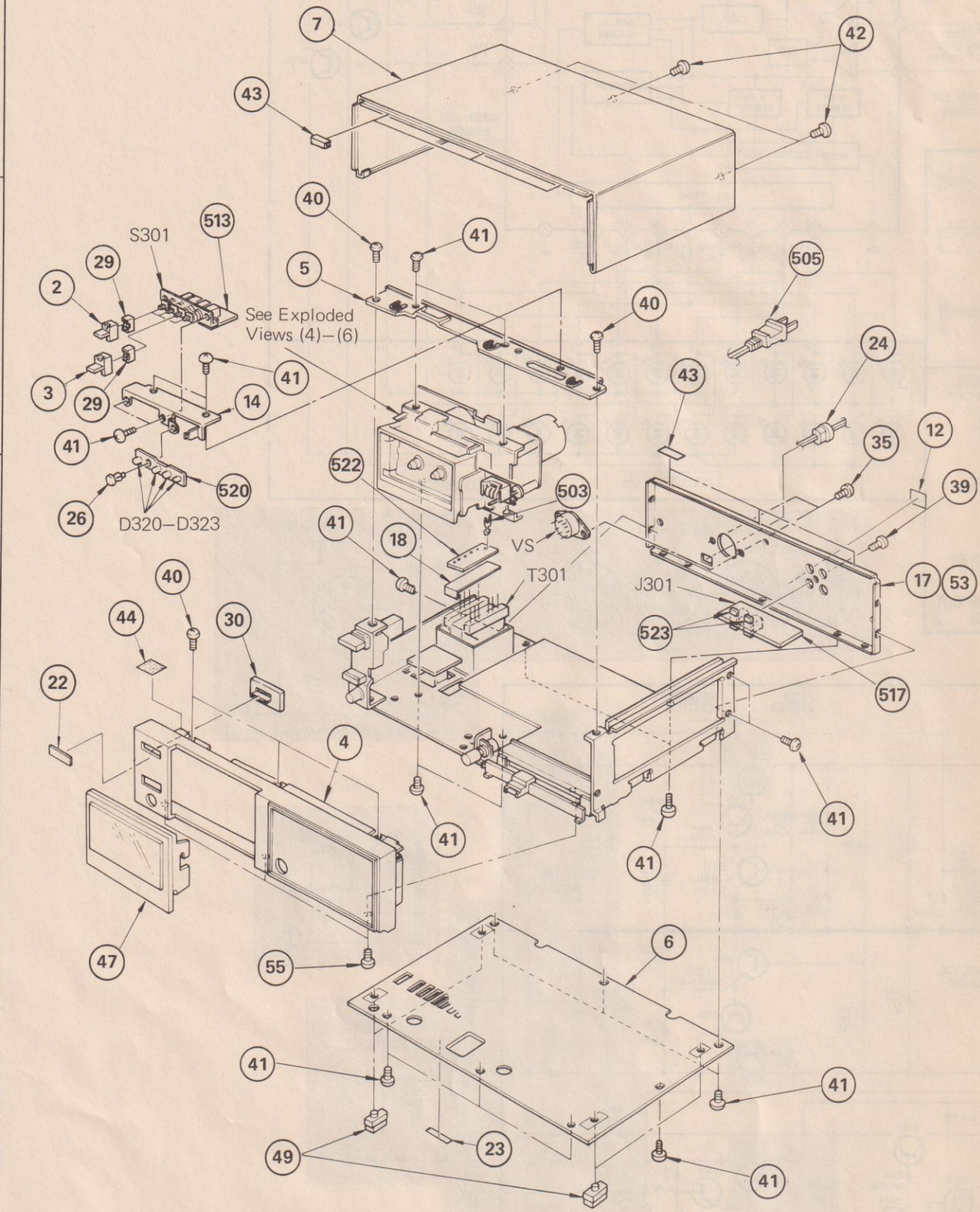
• See page 29 for the notes.

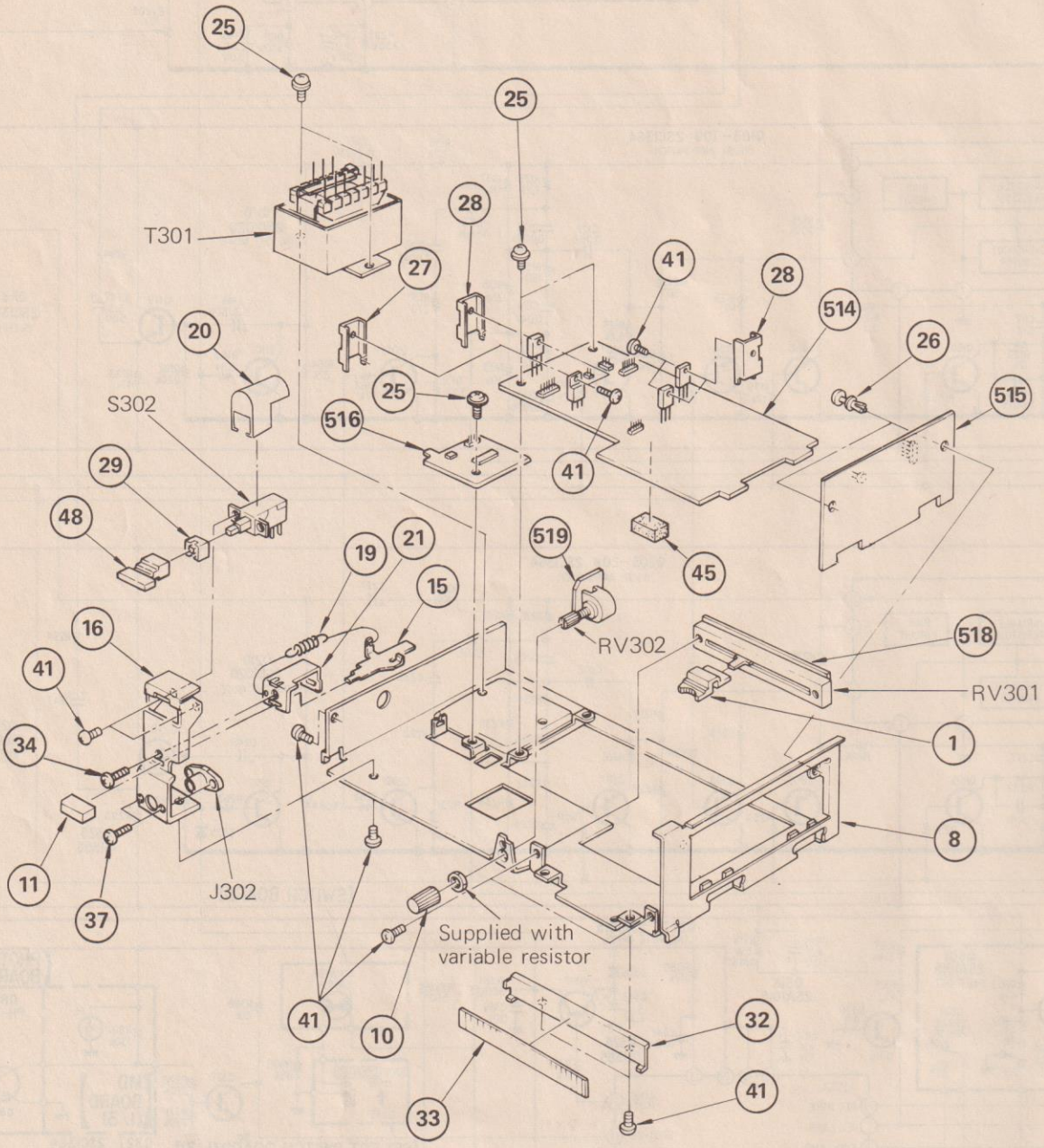



E
F
G
H
Q111—114 2SC1364
RECORD EQ SWITCH
[TAPE SELECT LED BOARD]
D320—323
SEL1310E
IC102 CX174A-2
DOLBY AMP
Q115,116 2SC1364
DOLBY AMP SWITCH
Q117 2SD1020
RECORD EQ SWITCH
VARIABLE RESISTOR
BIAS CIRCUIT
OVERSHOOT AMP
OVERSHOOT LIMITER
RECORD AMP
IC103(1/2)
V/I CONVERTER
INPUT AMP SWITCH
DET
DET AMP
RECORD LEVEL(L)
RECORD LEVEL(R)
Q211—214 2SC1364
RECORD EQ SWITCH
IC202 CX174A-2
DOLBY AMP
IC202(1/2)
IC203(1/2)
Q215,216 2SC1364
DOLBY AMP SWITCH
Q217 2SD1020
RECORD EQ SWITCH
[SELECT SWITCH BOARD(1/3)] [MD BOARD(1/3)]
S301-4-1
S301-4-2
S301-4 TAPE SELECT
AUTO
Fe-Cr(TYPE IV METAL)
S803 TAPE SELECT METAL
S802 EQ
[REMOTE CONTROL BOARD]
D331 ISI555
IC303 μPC339C
REMOTE CONTROL
IC304
[FUNCTION SWITCH BOARD]
S506 REW
S505 STOP
S504 AUTO PLAY
S507 FF
S508 REC
S502 PAUSE
S503 REC MUTE
D519 AR3432S
D520 EBG3432S
D521 AA3432S


D320-323
SEL1310E
IC306 BA6138
METER DRIVE
IC306
VOLT REG
OUTPUT AMP
INPUT AMP
COMPRESSION
MUTING
METER (L)
METER (R)
【METER BOARD】
IC305 MSL9351
METER CONTROL
D101, 201
1S1555
IC102 CX174A-2
DOLBY AMP
Q103-109 2SC1364
DOLBY AMP SWITCH
VARIABLE RESISTOR
BIAS CIRCUIT
OVERSHOOT AMP
OVERSHOOT LIMITER
Q110 2SD1020
LINE OUT MUTE
Q118 2SC1364
BUFFER
【PIN JACK BOARD】 (1/3)
LINE OUT (L)
LINE OUT (R)
S301-3 DOLBY NR
B-TYPE → C-TYPE
S301-2 DOLBY NR
OFF → ON
【SELECT SWITCH BOARD】(1/3)
IC202 CX174A-2
DOLBY AMP
Q203-209 2SC1364
DOLBY AMP SWITCH
Q210 2SD1020
LINE OUT MUTE
Q218 2SC1364
BUFFER
D325 1S1555
【SWITCH BOARD】
【MD BOARD(1/3)】
Q801 2SA1015
HALF DET
Q316 2SA1015
Q317 2SA1015
LINE MUTE DRIVE
D326 1S1555
S801 ERASE PROOF
S802 EQ
S804 HALF DET
COUNTER SWITCH
【PHOTO BOARD】
Q803 PH-102
【SELECT SWITCH BOARD(1/3)】
【MD BOARD (1/3)】
Q327 2SC1364
D310 1S1555
Q304 2SB731
Q305,306 2SA1015
VOLT REG
IC302 MSM58361RS
MECHANISM CONTROL
REC MUTE
REC LAMP
FWD LAMP
PAUSE LAMP
FWD
REC MUTE
REC
STOP
FF
PAUSE
REW
BIAS
LINE MUTE
SHUT-OFF
RESET
COUNTER
REW MOTOR
RPP
FF MOTOR
FWD MOTOR
HEAD SOLENOID
AMS SOLENOID
Q318 2SD809
MOTOR POWER SUPPLY
Q320 Q321
M2 REEL
M1 CAPSTAN
TAPE SPEED
【MD BOARD(1/3)】
D801 1S1555
Q319 2SC1364
MOTOR POWER SUPPLY
Q320, 321 2SB808
REEL MOTOR CONTROL
Q322,323 2SD1020
Q326 2SD1020
SOLENOID DRIVE


[METER BOARD]
IC305
MSL9351
METER CONTROL
OSC
TIMING CONTROL CIRCUIT
4-BIT D/A CONVERTER
LATCH
DISPLAY DECODER
SAR
COMPARATOR
L-CH MEMORY
R-CH MEMORY
MEMORY CONTROL CIRCUIT
LED DRIVE
D101, 201
1S1555
Q328-331
2SA1015
LED SWITCH
Q331
Q330
Q329
Q328
R344 470
R343 470
R342 470
R341 470
R345 82
R346 82
R347 82
R348 82
R349 82
R350 82
R351 82
R352 82
PEAK LEVEL METER
(LED BLOCK)
J301-3
LINE OUT (L)
J301-4
LINE OUT (R)
PIN JACK BOARD (1/3)
S301-3 DOLBY NR
B-TYPE
C-TYPE
S301-2 DOLBY NR
OFF
ON
SELECT SWITCH BOARD (1/3)
SELECTOR POSITION
110V
120V
220V
240V
E MODEL
S302 POWER
C301 0.01 400V
VS
VOLTAGE SELECTOR
AC IN
※:NOT REPLACEABLE: BUILT IN TRANSFORMER.
Q301 2SD809
VOLT REG
Q302, 303 2SC1364
D310 1S1555
D311 HZ6B1L
VOLT REG
D301-309 10E2
RECT
T301 POWER
Q304 2SB731
VOLT REG
Q305, 306 2SA1015
D801 1S1555
Q325 2SB734
Q324 2SC1364
SOLENOID KICK
Q308 2SD880
Q307 2SC1364
VOLT REG
D312 HZ6C3L
VOLT REG
2SD1020
DRIVE
AEP, UK MODEL
UK MODEL
AEP MODEL
US, CANADIAN MODEL

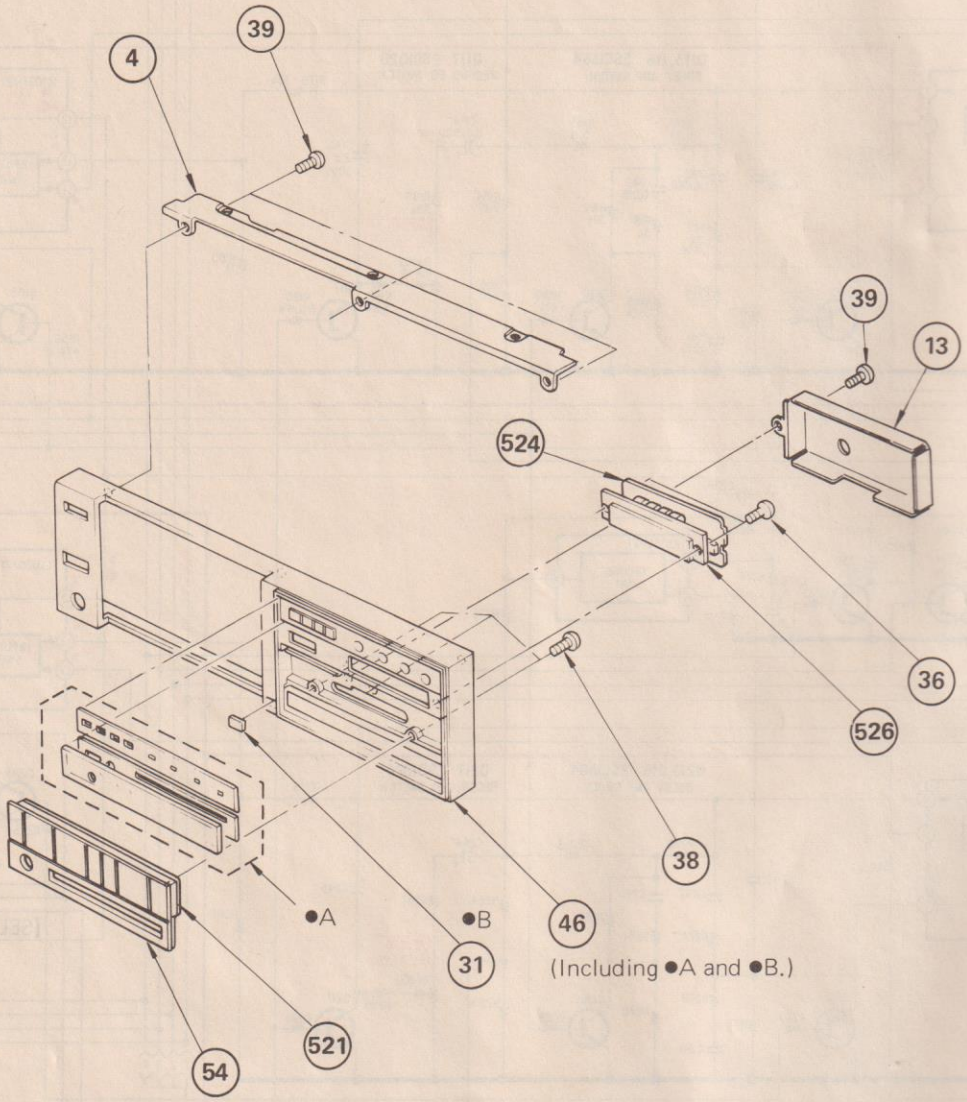

(1)
(2)
A
B
C
D
1
2
3
4
5
S301
See Exploded Views (4)–(6)
D320–D323
VS
T301
J301


A
B
C
D
(2)
(3)
1
2
3
4
5
25
25
28
T301
27
41
28
514
20
26
S302
25
516
515
41
29
48
519
21
19
45
15
16
RV302
518
41
RV301
34
1
11
8
37
J302
Supplied with
variable resistor
41
10
32
33
41

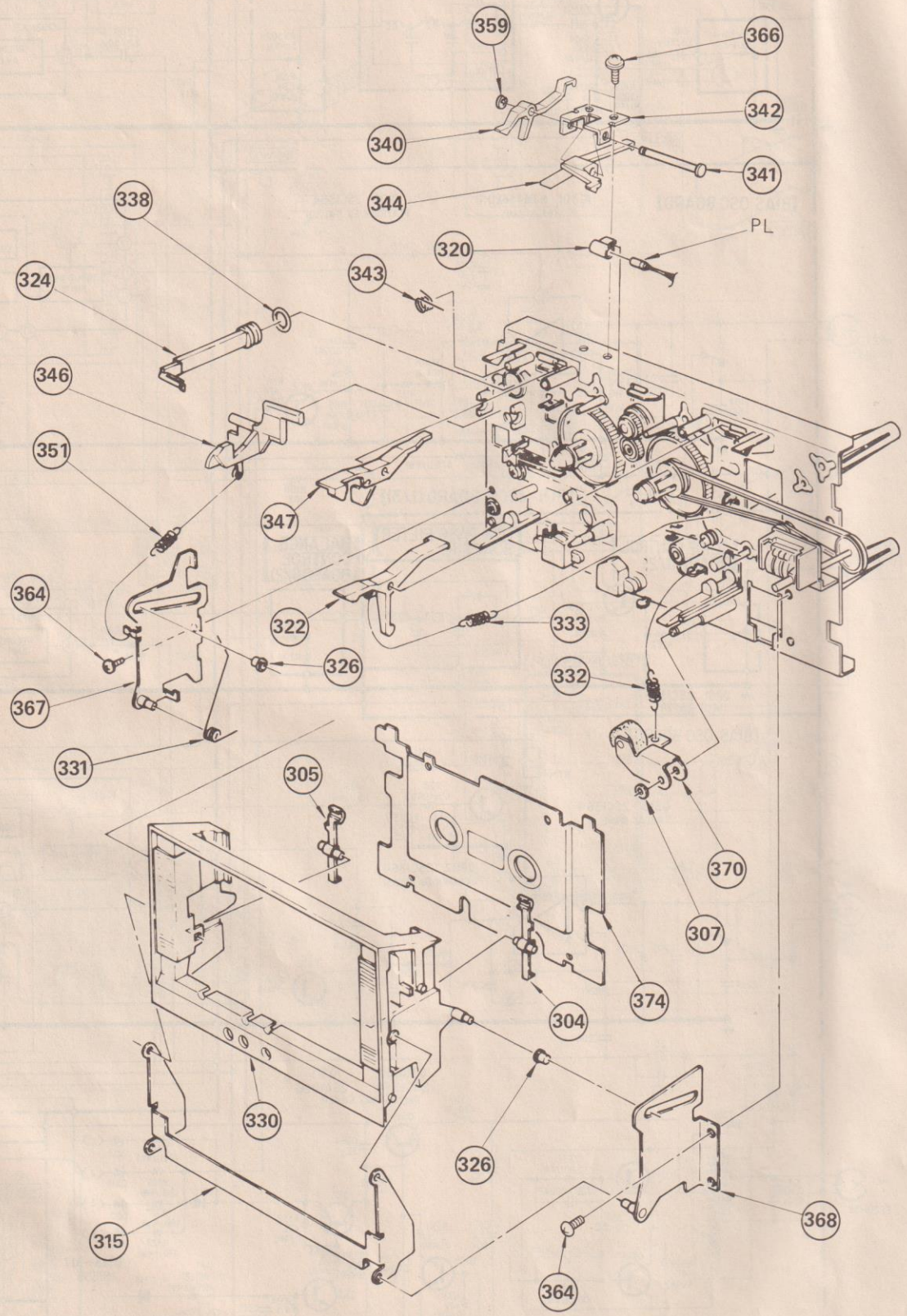
A B C D

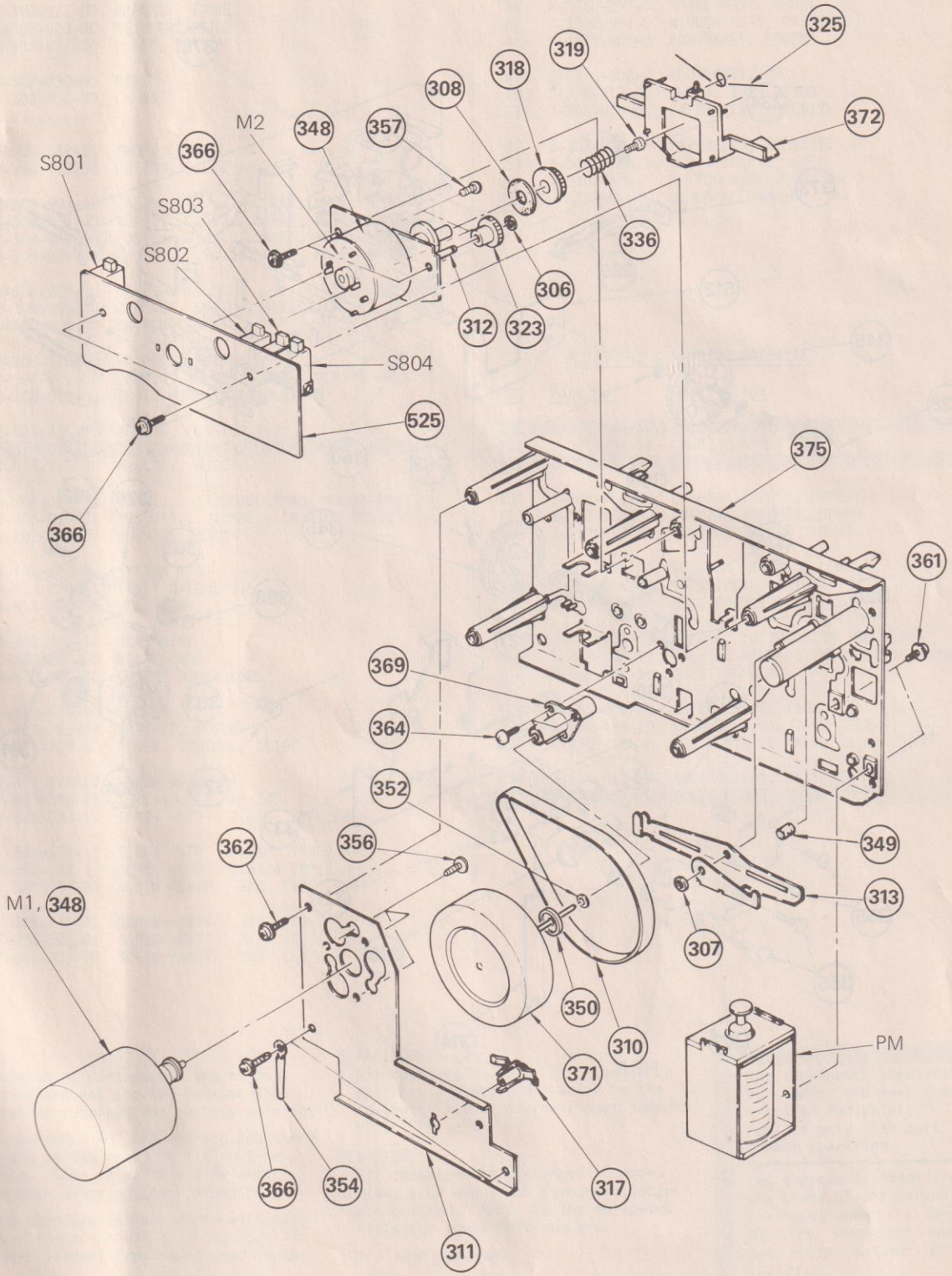
(3) (4)

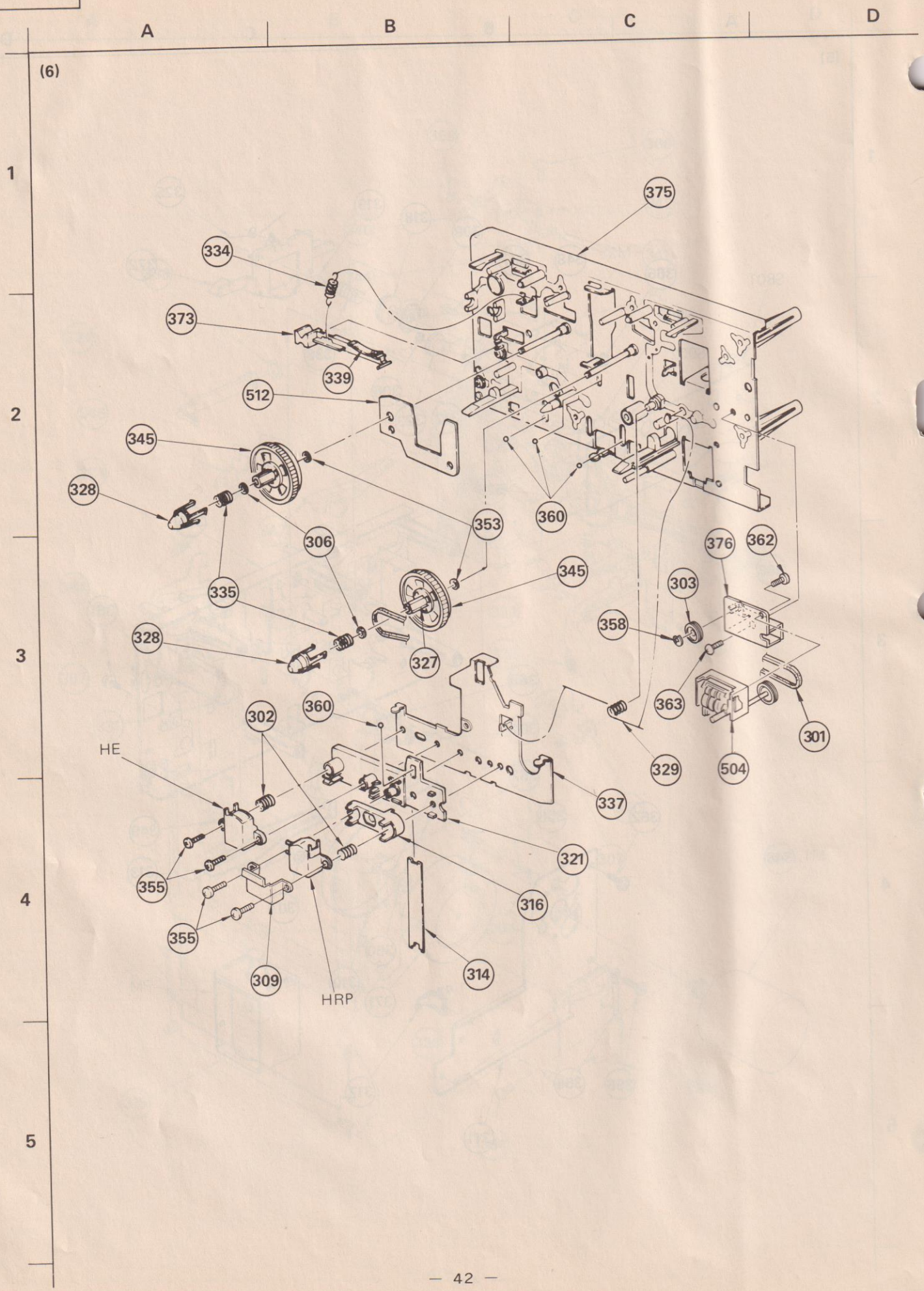
1 2 3 4 5



(Including ●A and ●B.)


A
B
C
D
(4)
1
2
3
4
5
359
366
342
340
341
344
338
PL
320
343
324
346
351
347
364
322
333
326
332
367
331
305
370
307
374
304
330
326
315
368
364


(5)
A
B
C
D
1
2
3
4
5
325
319
318
308
372
M2
348
357
366
S801
S803
S802
336
306
312
323
S804
525
366
375
361
369
364
352
362
356
349
313
M1, 348
307
350
310
PM
371
366
354
317
311


A
B
C
D
1
2
3
4
5
(6)
375
334
373
339
512
345
328
306
353
360
335
345
376
362
303
358
328
327
363
301
360
302
HE
329
504
337
321
355
316
355
314
309
HRP

GENERAL SECTION

No.	Part No.	Description
1	3-302-901-00	KNOB (A), SLIDE CONTROL
2	3-302-902-00	KNOB, PUSH
3	3-302-902-31	KNOB, PUSH
4 ♦	3-302-922-00	BRACKET, PANEL
5 ♦	3-302-923-00	REINFORCEMENT
6 ♦	3-302-927-00	PLATE, BOTTOM
7	3-302-930-00	CASE
8 ♦	3-302-932-00	CHASSIS
9	.....	
10	3-302-942-11	KNOB, CONTROL
11	3-304-419-00	BUTTON, EJECT
12	3-308-903-00	(AEP)..... LABEL, MODEL NUMBER
12	3-308-907-00	(UK).....LABEL, MODEL NUMBER
12	3-308-908-00	(US,Canadian)...LABEL, MODEL NUMBER
12	3-308-909-00	(E).....LABEL, MODEL NUMBER
13 ♦	3-308-904-00	CASE, SHIELD
14 ♦	3-308-905-00	BRACKET, SWITCH, SELECTION
15 ♦	3-308-906-00	SLIDER, EJECT
16 ♦	3-308-910-00	BRACKET, SWITCH
17 ♦	3-308-911-01	(AEP,US,Canadian,UK)...PLATE, JACK
18	3-308-919-00	(E)....SHEET, INSULATION
19	3-533-435-00	SPRING, TENSION (S)
20 ⚠	3-575-524-11	(US,Canadian)...COVER, POWER SWITCH
21 ♦	3-579-332-00	BRACKET, EJECT
22	3-701-690-00	(UK).....LABEL (MADE IN JAPAN)
23	3-703-079-21	(US,UK).....LABEL, CAUTION (BACK)
24	3-703-244-00	BUSHING, CORD
25	3-703-486-00	+PTTWH 3X5
26	4-812-134-11	RIVET NYLON, 3.5
27 ♦	4-854-790-00	HEAT SINK
28 ♦	4-861-002-11	HEAT SINK
29	4-864-307-00	RING, KNOB
30	4-875-501-00	GUIDE, POWER KNOB
31	4-875-535-00	EMBLEM
32 ♦	4-875-706-02	BRACKET, COVER
33	4-875-708-00	COVER, CONTROL, SLIDE
34	7-621-775-10	SCREW +B 2.6X4
35	7-682-546-09	(E)...SCREW +B 3X5
36	7-685-533-19	SCREW +BTP 2.6X6 TYPE2 N-S
37	7-685-534-19	SCREW +BTP 2.6X8 TYPE2 N-S
38	7-685-537-19	SCREW +BTP 2.6X14 TYPE2 N-S
39	7-685-646-29	SCREW +BVTP 3X8 TYPE2 SLIT
40	7-685-870-01	SCREW +BVTT 3X5 (S)
41	7-685-871-01	SCREW +BVTT 3X6 (S)
42	7-685-871-09	SCREW +BVTT 3X6 (S)

GENERAL SECTION

No.	Part No.	Description
43	9-911-837-XX	CUSHION, FILTER
44	9-911-841-XX	CUSHION
45	9-911-846-XX	CUSHION
46	A-2310-207-A	PANEL ASSY, FRONT
47	X-3308-901-0	WINDOW ASSY, CASSETTE
48	X-4875-501-0	KNOB ASSY, POWER
49	X-4875-503-0	FOOT ASSY, MF
50	3-308-917-00	SHEET, INSULATION
51	3-308-918-00	PAPER (F), ADHESIVE
52	3-308-920-00	PAPER (G), ADHESIVE
53	3-308-911-11	(E)....PLATE, JACK
54	X-3302-903-1	BUTTON ASSY, FUNCTION
55	3-703-249-00	SCREW +PTTWH 3x6

ACCESSORY & PACKING MATERIAL

No.	Part No.	Description
101 ⚠	1-526-565-12	(E1)...PLUG ADAPTOR
102	1-551-734-11	CORD, CONNECTION
103 ⚠	1-555-734-00	(E2)...CORD, POWER
104	3-302-951-00	CUSHION (LEFT), UPPER
105	3-302-952-00	CUSHION (RIGHT), UPPER
106	3-302-953-00	CUSHION (LEFT), LOWER
107	3-302-954-00	CUSHION (RIGHT), LOWER
108	3-308-916-00	INDIVIDUAL CARTON
109	3-701-630-00	BAG, POLYETHYLENE
110	3-773-104-41	MANUAL, INSTRUCTION (ENGLISH)
111	3-773-104-11	(AEP)...MANUAL, INSTRUCTION; DUTCH/SWEDISH
112	3-793-828-11	QUESTIONNAIRE
113	4-855-809-00	SHEET, PROTECTION
114	8-890-454-10	(Canadian)....TAPE (UCX-S)
115	X-3701-105-0	ROD ASSY, CLEANING, HEAD
116	7-824-012-00	INSTRUCTION, CASSETTE
117 ⚠	1-551-967-00	(UK)...CORD, POWER

NOTE:
- Items with no part number and no description are not stocked because they are seldom required for routine service.
- Items marked " ♦ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.

SEMICONDUCTORS
In each case, U : μ, for example:
UA···: μA···, UPA···: μPA···, UPC···: μPC, UPD···: μPD···

CAPACITORS:
- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF: μF, PF: μμF.

RESISTORS
- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.
- F : nonflammable

COILS
- MMH : mH, UH : μH

- The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

MECHANISM SECTION

No.	Part No.	Description
301	2-101-297-00	BELT (2), COUNTER
302	3-481-272-00	SPRING, COMPRESSION
303	3-536-460-00	PULLEY, MIDWAY
304	3-555-113-00	SPRING (RIGHT)
305	3-555-114-00	SPRING (LEFT)
306	3-558-708-11	WASHER, STOPPER
307	3-558-708-21	WASHER, STOPPER
308	3-564-027-11	FELT, LIMITER
309 ♦	3-564-100-00	PLATE (B), SHIELD, HEAD
310	3-564-319-00	BELT, CAPSTAN
311 ♦	3-575-302-00	RETAINER, THRUST
312	3-575-304-00	SHAFT, GEAR, FR
313 ♦	3-575-307-00	LEVER, FORWARD
314 ♦	3-575-312-00	SPRING
315 ♦	3-575-314-00	LEVER, FULCRUM, HOLDER
316	3-575-320-00	BASE, ADJUSTMENT, HEAD
317	3-575-321-00	RETAINER, THRUST, CAPSTAN
318	3-575-324-00	GEAR, LIMITER
319	3-575-327-00	STOPPER
320	3-575-328-00	HOLDER, LAMP
321	3-575-330-00	BRACKET, HEAD
322 ♦	3-575-331-00	LEVER, DETECTION, HALF
323	3-575-332-00	GEAR, FR
324	3-575-333-00	PISTON
325	3-575-345-00	SPRING
326	3-575-348-00	ROLLER, GUIDE, THREADING
327	3-575-349-00	PULLEY, CB
328	3-575-350-00	CLAW, REEL TABLE
329	3-575-351-00	SPRING
330	3-575-355-00	HOLDER, CASSETTE
331	3-575-356-00	SPRING
332	3-575-357-00	SPRING, TENSION
333	3-575-358-00	SPRING, TENSION
334	3-575-359-00	SPRING, TENSION
335	3-575-365-00	SPRING, COMPRESSION
336	3-575-368-00	SPRING, COMPRESSION
337	3-575-383-00	CHASSIS, HEAD
338	3-575-392-00	RING, PISTON
339	3-575-437-00	RUBBER, BRAKE
340	3-575-438-00	LEVER, DETECTION
341 ♦	3-575-439-00	SHAFT, LEVER, DETECTION
342 ♦	3-575-440-00	BRACKET, LEVER, DETECTION
343	3-575-441-00	SPRING
344	3-575-446-00	LEVER, DETECTION, METAL
345	3-575-447-00	TABLE, REEL

MECHANISM SECTION

No.	Part No.	Description
346	3-575-448-00	LEVER, LOCK
347	3-575-449-00	LEVER, DETECTION, REC
348	3-575-457-00	PLATE (B), SHIELD, MOTOR
349	3-575-490-00	RUBBER, STOPPER
350	3-576-734-00	WASHER, CAPSTAN
351	3-632-261-00	SPRING
352	3-701-438-21	WASHER
353	3-701-439-21	WASHER
354 ♦	3-701-822-00	HOLDER, WIRE
355	3-703-496-00	SCREW + PWH2X14
356	7-621-259-15	SCREW +P 2.6X3
357	7-621-775-10	SCREW +B 2.6X4
358	7-624-101-04	STOP RING 1.2 (E TYPE)
359	7-624-104-04	STOP RING 2.0, TYPE -E
360	7-671-112-11	BALL, STEEL
361	7-682-949-01	SCREW +PSW 3X10
362	7-685-533-19	SCREW +BTP 2.6X6 TYPE2 N-S
363	7-685-860-01	SCREW +BVTT 2.6X4 (S)
364	7-685-861-01	SCREW +BVTT 2.6X5 (S)
365	7-685-870-01	SCREW +BVTT 3X5 (S)
366	7-687-246-21	SCREW, TOTSU PTPWH 3X8, TYPE2
367 ♦	X-3575-301-0	PLATE (A) ASSY, HOLDER FULCRUM
368 ♦	X-3575-302-0	PLATE (B) ASSY, FULCRUM
369	X-3575-303-0	METAL ASSY, CAPSTAN
370	X-3575-304-0	PINCH LEVER (T) ASSY
371	X-3575-305-0	FLYWHEEL (D) ASSY
372	X-3575-309-0	PLATE ASSY, BRAKE
373	X-3575-310-0	LEVER ASSY, TENSION, BACK
374	X-3575-327-3	RETAINER ASSY, CASSETTE
375 ♦	X-3575-334-0	CHASSIS ASSY, MECHANISM
376 ♦	X-3575-354-0	BRACKET ASSY, COUNTER

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SEMICONDUCTORS
In each case, U : μ, for example:
UA···: μA···, UPA···: μPA···, UPC···: μPC, UPD···: μPD···

CAPACITORS:
- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers.
MF: μF, PF: μμF.

RESISTORS
- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.
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COILS
- MMH : mH, UH : μH

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ELECTRICAL PARTS

Ref.No.	Part No.	Description
501	1-408-214-00	MICRO INDUCTOR 3.9MMH
502	♦;1-508-878-00	BASE POST
503	♦;1-535-416-00	(E)....TERMINAL
504	1-548-569-11	COUNTER, TAPE
505	⚠.1-534-817-XX	(AEP).....CORD, POWER
505	⚠.1-551-472-00	(E).....CORD, POWER
505	⚠.1-551-628-00	(US,Canadian)...CORD, POWER
505	⚠.1-551-962-00	(UK).....CORD, POWER
506	♦;1-560-060-00	PIN, CONNECTOR 2P
507	♦;1-560-061-00	PIN, CONNECTOR 3P
508	♦;1-560-062-00	PIN, CONNECTOR 4P
509	♦;1-560-064-00	PIN, CONNECTOR 6P
510	♦;1-560-065-00	PIN, CONNECTOR 8P
511	♦;1-560-230-00	PIN, CONNECTOR 12P
512	♦;1-603-823-00	PC BOARD, PHOTO
513	♦;1-604-637-00	PC BOARD, SWITCH
514	♦;1-608-458-00	PC BOARD, SYSTEM CONTROL/AUDIO
515	♦;1-608-459-00	PC BOARD, BIAS OSCILLATION
516	♦;1-608-460-00	PC BOARD, REMOTE CONTROL
517	♦;1-608-461-00	PC BOARD, PIN JACK
518	♦;1-608-462-00	PC BOARD, SLIDE CONTROL
519	♦;1-608-463-00	PC BOARD, BALANCE CONTROL
520	♦;1-608-464-00	PC BOARD, TAPE SELECT LED
521	♦;1-608-465-00	PC BOARD, SELECT SWITCH
522	⚠♦.1-608-466-00	(E)....PC BOARD, POWER
523	♦;1-608-467-00	PC BOARD, LOW-PASS FILTER
524	♦;1-608-468-00	PC BOARD, METER
525	1-608-469-00	PC BOARD, MD
526	1-806-545-00	DIODE (LED BLOCK)
527	1-608-699-00	(UK,AEP)...PC BOARD, SPACER

C104	1-107-165-00	MICA	56PF	5%	500V
C107	1-107-167-00	MICA	75PF	5%	500V
C114	1-130-634-00	FILM	0.15MF	5%	50V
C115	1-130-632-00	FILM	0.1MF	5%	50V
C116	1-130-632-00	FILM	0.1MF	5%	50V
C121	1-130-630-00	FILM	0.068MF	5%	50V
C123	1-130-629-00	FILM	0.056MF	5%	50V
C124	1-130-628-00	FILM	0.047MF	5%	50V
C130	1-130-626-00	FILM	0.033MF	5%	50V
C131	1-130-628-00	FILM	0.047MF	5%	50V
C132	1-130-627-00	FILM	0.039MF	5%	50V
C133	1-130-634-00	FILM	0.15MF	5%	50V
C134	1-130-628-00	FILM	0.047MF	5%	50V
C204	1-107-165-00	MICA	56PF	5%	500V
C207	1-107-167-00	MICA	75PF	5%	500V

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
C214	1-130-634-00	FILM	0.15MF	5%	50V
C215	1-130-632-00	FILM	0.1MF	5%	50V
C216	1-130-632-00	FILM	0.1MF	5%	50V
C221	1-130-630-00	FILM	0.068MF	5%	50V
C223	1-130-629-00	FILM	0.056MF	5%	50V
C224	1-130-628-00	FILM	0.047MF	5%	50V
C230	1-130-626-00	FILM	0.033MF	5%	50V
C231	1-130-628-00	FILM	0.047MF	5%	50V
C232	1-130-627-00	FILM	0.039MF	5%	50V
C233	1-130-634-00	FILM	0.15MF	5%	50V
C234	1-130-628-00	FILM	0.047MF	5%	50V
C301	⚠.1-161-749-00	(US,Canadian)..CAP, CERAMIC	10000PF		125V
C301	⚠.1-161-744-00	(UK,E,AEP).....CAP, CERAMIC	10000PF		400V
C302	⚠.1-123-337-00	ELECT	10MF	20%	25V
C306	⚠.1-123-334-00	ELECT	220MF	20%	25V
C309	⚠.1-123-349-00	ELECT	1000MF	20%	35V
C310	⚠.1-123-324-00	ELECT	1000MF	20%	25V
C312	⚠.1-123-296-00	ELECT	220MF	20%	6.3V
C313	⚠.1-123-329-00	ELECT	10MF	20%	25V
C322	1-130-289-00	FILM	0.0047MF	5%	100V
C323	1-130-289-00	FILM	0.0047MF	5%	100V
C325	1-129-708-00	FILM	0.0033MF	10%	630V
C331	1-130-629-00	FILM	0.056MF	5%	50V
C339	1-130-626-00	FILM	0.033MF	5%	50V
CT301	1-141-225-00	CAP, TUNING, TRIMMER			
D101	8-719-815-55	DIODE 1S1555			
D201	8-719-815-55	DIODE 1S1555			
D301	⚠.8-719-200-02	DIODE 10E-2			
D302	⚠.8-719-200-02	DIODE 10E-2			
D303	⚠.8-719-200-02	DIODE 10E-2			
D304	⚠.8-719-200-02	DIODE 10E-2			
D305	⚠.8-719-200-02	DIODE 10E-2			
D306	⚠.8-719-200-02	DIODE 10E-2			
D307	⚠.8-719-200-02	DIODE 10E-2			
D308	⚠.8-719-200-02	DIODE 10E-2			
D309	⚠.8-719-200-02	DIODE 10E-2			
D310	8-719-815-55	DIODE 1S1555			
D311	8-719-910-64	DIODE HZ6B1L			
D312	8-719-910-69	DIODE HZ6C3L			
D313	8-719-815-55	DIODE 1S1555			
D314	8-719-815-55	DIODE 1S1555			
D315	8-719-815-55	DIODE 1S1555			
D316	8-719-815-55	DIODE 1S1555			

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SEMICONDUCTORS

In each case, U : μ, for example:
UA···: μA···, UPA···: μPA···, UPC···: μPC, UPD···: μPD···

CAPACITORS:

- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF: μF, PF: μμF.

RESISTORS

- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.
- F : nonflammable

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- MMH : mH, UH : μH

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ELECTRICAL PARTS

Ref.No.	Part No.	Description
D317	8-719-815-55	DIODE 1S1555
D318	8-719-910-19	DIODE HZ11C3L
D319	8-719-815-55	DIODE 1S1555
D320	8-719-313-11	DIODE SEL1310E
D321	8-719-313-11	DIODE SEL1310E
D322	8-719-313-11	DIODE SEL1310E
D323	8-719-313-11	DIODE SEL1310E
D324	8-719-815-55	DIODE 1S1555
D325	8-719-815-55	DIODE 1S1555
D326	8-719-815-55	DIODE 1S1555
D327	8-719-200-02	DIODE 10E-2
D331	8-719-815-55	DIODE 1S1555
D519	8-719-934-32	DIODE AR3432S
D520	8-719-900-28	DIODE EBG3432S
D521	8-719-934-34	DIODE AA3432S
D801	8-719-815-55	DIODE 1S1555
HE	8-825-724-00	HEAD, ERASE EF-201-36
HRP	8-829-373-30	HEAD, REC/PB (PP181-3602C)
IC102	8-759-300-76	IC CX-174A-2
IC103	8-759-300-76	IC CX-174A-2
IC202	8-759-300-76	IC CX-174A-2
IC203	8-759-300-76	IC CX-174A-2
IC301	8-759-705-62	IC NJM4562D-D
IC302	8-759-900-71	IC MSM58361RS
IC303	8-759-133-90	IC UPC339C
IC304	8-759-729-03	IC NJM2903D
IC305	8-759-993-51	IC MSL9351
IC306	8-759-961-38	IC BA6138
J301	1-507-761-00	JACK, PIN 4P
J302	1-561-965-00	SOCKET 5P
L101	1-408-262-00	MICRO INDUCTOR 27MMH
L102	1-408-259-00	MICRO INDUCTOR 15MMH
L201	1-408-262-00	MICRO INDUCTOR 27MMH
L103	1-408-214-00	MICRO INDUCTOR 3.9MMH
L203	1-408-214-00	MICRO INDUCTOR 3.9MMH
L202	1-408-259-00	MICRO INDUCTOR 15MMH
L301	1-407-177-XX	MICRO INDUCTOR 470UH
LPF101	1-231-388-00	FILTER, LOW PASS
LPF201	1-231-388-00	FILTER, LOW PASS
M	X-3575-348-0	MOTOR ASSY, REEL
PL	1-518-313-00	LAMP, PILOT
PM	X-3575-316-0	SOLENOID ASSY
Q101	8-729-334-58	TRANSISTOR 2SC1345
Q102	8-729-663-47	TRANSISTOR 2SC1364
Q103	8-729-663-47	TRANSISTOR 2SC1364

ELECTRICAL PARTS

Ref.No.	Part No.	Description
Q104	8-729-663-47	TRANSISTOR 2SC1364
Q105	8-729-663-47	TRANSISTOR 2SC1364
Q106	8-729-663-47	TRANSISTOR 2SC1364
Q107	8-729-663-47	TRANSISTOR 2SC1364
Q108	8-729-663-47	TRANSISTOR 2SC1364
Q109	8-729-663-47	TRANSISTOR 2SC1364
Q110	8-729-102-03	TRANSISTOR 2SD1020
Q111	8-729-663-47	TRANSISTOR 2SC1364
Q112	8-729-663-47	TRANSISTOR 2SC1364
Q113	8-729-663-47	TRANSISTOR 2SC1364
Q114	8-729-663-47	TRANSISTOR 2SC1364
Q115	8-729-663-47	TRANSISTOR 2SC1364
Q116	8-729-663-47	TRANSISTOR 2SC1364
Q117	8-729-102-03	TRANSISTOR 2SD1020
Q118	8-729-663-47	TRANSISTOR 2SC1364
Q201	8-729-334-58	TRANSISTOR 2SC1345
Q202	8-729-663-47	TRANSISTOR 2SC1364
Q203	8-729-663-47	TRANSISTOR 2SC1364
Q204	8-729-663-47	TRANSISTOR 2SC1364
Q205	8-729-663-47	TRANSISTOR 2SC1364
Q206	8-729-663-47	TRANSISTOR 2SC1364
Q207	8-729-663-47	TRANSISTOR 2SC1364
Q208	8-729-663-47	TRANSISTOR 2SC1364
Q209	8-729-663-47	TRANSISTOR 2SC1364
Q210	8-729-102-03	TRANSISTOR 2SD1020
Q211	8-729-663-47	TRANSISTOR 2SC1364
Q212	8-729-663-47	TRANSISTOR 2SC1364
Q213	8-729-663-47	TRANSISTOR 2SC1364
Q214	8-729-663-47	TRANSISTOR 2SC1364
Q215	8-729-663-47	TRANSISTOR 2SC1364
Q216	8-729-663-47	TRANSISTOR 2SC1364
Q217	8-729-102-03	TRANSISTOR 2SD1020
Q218	8-729-663-47	TRANSISTOR 2SC1364
Q301 ⚠	8-729-180-93	TRANSISTOR 2SD809
Q302	8-729-663-47	TRANSISTOR 2SC1364
Q303	8-729-663-47	TRANSISTOR 2SC1364
Q304 ⚠	8-729-173-13	TRANSISTOR 2SB731
Q305	8-729-201-52	TRANSISTOR 2SA1015
Q306	8-729-201-52	TRANSISTOR 2SA1015
Q307	8-729-663-47	TRANSISTOR 2SC1364
Q308 ⚠	8-729-288-02	TRANSISTOR 2SD880
Q309	8-729-663-47	TRANSISTOR 2SC1364
Q310	8-729-663-47	TRANSISTOR 2SC1364
Q311	8-729-201-52	TRANSISTOR 2SA1015
Q312	8-729-663-47	TRANSISTOR 2SC1364

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ELECTRICAL PARTS

Ref.No.	Part No.	Description
Q313	8-729-178-54	TRANSISTOR 2SC2785
Q314	8-729-178-54	TRANSISTOR 2SC2785
Q315	8-729-663-47	TRANSISTOR 2SC1364
Q316	8-729-201-52	TRANSISTOR 2SA1015
Q317	8-729-201-52	TRANSISTOR 2SA1015
Q318	8-729-180-93	TRANSISTOR 2SD809
Q319	8-729-663-47	TRANSISTOR 2SC1364
Q320	8-729-800-83	TRANSISTOR 2SB808
Q321	8-729-800-83	TRANSISTOR 2SB808
Q322	8-729-102-03	TRANSISTOR 2SD1020
Q323	8-729-102-03	TRANSISTOR 2SD1020
Q324	8-729-663-47	TRANSISTOR 2SC1364
Q325	8-729-103-43	TRANSISTOR 2SB734
Q326	8-729-102-03	TRANSISTOR 2SD1020
Q327	8-729-663-47	TRANSISTOR 2SC1364
Q328	8-729-880-83	TRANSISTOR 2SB808
Q329	8-729-880-83	TRANSISTOR 2SB808
Q330	8-729-880-83	TRANSISTOR 2SB808
Q331	8-729-880-83	TRANSISTOR 2SB808
Q801	8-729-201-52	TRANSISTOR 2SA1015
Q803	8-729-110-21	TRANSISTOR PH102
R396	1-244-857-11	CARBON 220 5% 1/2W
R398 ⚠	1-212-934-00	FUSIBLE 1 5% 1/2W F
R399 ⚠	1-217-374-00	FUSIBLE 0.82 5% 1/4W F
RV101	1-226-236-00	RES, ADJ, CARBON 10K
RV102	1-226-236-00	RES, ADJ, CARBON 10K
RV103	1-226-236-00	RES, ADJ, CARBON 10K
RV201	1-226-236-00	RES, ADJ, CARBON 10K
RV202	1-226-236-00	RES, ADJ, CARBON 10K
RV203	1-226-236-00	RES, ADJ, CARBON 10K
RV301	1-228-418-00	RES, VAR, SLIDE 50K
RV302	1-228-419-00	RES, VAR 5K/5K
RY301	1-515-473-00	RELAY
S301	1-554-278-00	SWITCH, PUSH (4 KEY)
S302 ⚠	1-553-318-00	(UK,E,AEP).....SWITCH, PUSH (POWER)
S302 ⚠	1-553-319-00	(US,Canadian)..SWITCH, PUSH (POWER)
S502	1-553-235-00	SWITCH, KEY BOARD
S503	1-553-235-00	SWITCH, KEY BOARD
S504	1-553-235-00	SWITCH, KEY BOARD
S505	1-553-235-00	SWITCH, KEY BOARD
S506	1-553-235-00	SWITCH, KEY BOARD
S507	1-553-235-00	SWITCH, KEY BOARD
S508	1-553-235-00	SWITCH, KEY BOARD
S801	1-552-532-00	SWITCH, PUSH
S802	1-552-532-00	SWITCH, PUSH

ELECTRICAL PARTS

Ref.No.	Part No.	Description
S803	1-552-532-00	SWITCH, PUSH
S804	1-553-869-00	SWITCH, PUSH
T301 ⚠	1-447-418-00	(AEP,UK).....TRANSFORMER, POWER
T301 ⚠	1-447-419-00	(US,Canadian)...TRANSFORMER, POWER
T301 ⚠	1-447-420-00	(E).....TRANSFORMER, POWER
T302	1-406-041-00	TRANSFORMER, OSC
VS ⚠	1-526-576-31	(E).....SELECTOR, POWER VOLTAGE

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ELECTROLYTIC CAPACITORS

RATING → : Use the high voltage rated one.

CAP. (μF)	6.3 VOLT.	10 VOLT.	16 VOLT.	25 VOLT.	35 VOLT.	50 VOLT.
	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.
0.47					→	1-121-726-00
1.0					→	1-121-391-00
2.2					→	1-121-450-00
3.3	→	→	→	1-121-392-00	→	1-121-393-00
4.7	→	→	→	1-121-395-00	→	1-121-396-00
10	→	→	1-121-651-00	1-121-398-00	→	1-121-738-00
22	→	→	1-121-479-00	1-121-480-00	1-121-662-00	1-121-152-00
33	→	→	1-121-403-00	1-121-404-00	1-121-652-00	1-121-405-00
47	→	1-121-352-00	1-121-409-00	1-121-410-00	1-121-653-00	1-121-411-00
100	→	1-121-414-00	1-121-415-00	1-121-416-00	1-121-357-00	1-121-417-00
220	1-121-419-00	1-121-420-00	1-121-421-00	1-121-422-00	1-121-261-00	1-121-423-00
330	1-121-751-00	1-121-805-00	1-121-521-00	1-121-654-00	1-121-655-00	1-121-656-00
470	1-121-424-00	1-121-425-00	1-121-426-00	1-121-733-00	1-121-361-00	1-121-810-00
1000	–	1-121-736-00	1-121-245-00	1-121-657-00	1-121-388-00	1-123-061-00
2200	1-121-658-00	1-121-659-00	1-121-660-00	1-123-067-00	1-121-984-00	–
3300	1-121-661-00	1-123-075-00	1-123-071-00	–	–	–

CAP. (μF)	100 VOLT.	160 VOLT.	250 VOLT.	350 VOLT.
	PART No.	PART No.	PART No.	PART No.
0.47	–	–	–	–
1.0	1-123-249-00	1-123-252-00	1-123-003-00	1-121-168-00
2.2	1-123-250-00	1-123-026-00	–	1-123-028-00
3.3	1-121-995-00	–	1-123-004-00	1-123-006-00
4.7	1-123-255-00	1-121-246-00	1-121-759-00	1-123-007-00
10	1-121-126-00	1-121-999-00	1-123-254-00	1-123-008-00
22	1-121-996-00	1-123-253-00	1-123-005-00	1-123-022-00
33	1-121-997-00	1-121-757-00	–	–
47	1-123-251-00	1-121-919-00	–	–
100	1-123-084-00	–	–	–

CERAMIC CAPACITORS

RATING

CAP. (pF)	50 VOLT.	CAP. (pF)	50 VOLT.	CAP. (pF)	50 VOLT.	CAP. (μF)	50 VOLT.
	PART No.		PART No.		PART No.		PART No.
0.5	1-101-837-00	22	1-102-959-00	150	1-101-361-00	0.001	1-102-074-00
0.75	1-101-586-00	24	1-102-960-00	160	1-101-367-00	0.0012	1-102-118-00
1.0	1-102-934-00	27	1-102-961-00	180	1-102-976-00	0.0015	1-102-119-00
1.5	1-101-576-00	30	1-102-962-00	200	1-102-977-00	0.0018	1-102-120-00
2.0	1-102-935-00	33	1-102-963-00	220	1-102-978-00	0.0022	1-102-121-00
3	1-102-936-00	36	1-102-964-00	240	1-102-979-00	0.0027	1-102-122-00
4	1-102-937-00	39	1-102-965-00	270	1-102-980-00	0.0033	1-102-123-00
5	1-102-942-00	43	1-102-966-00	300	1-102-981-00	0.0039	1-102-124-00
6	1-102-943-00	47	1-101-880-00	330	1-102-820-00	0.0047	1-102-125-00
7	1-102-944-00	51	1-101-882-00	360	1-102-821-00	0.0056	1-102-126-00
8	1-102-945-00	56	1-101-884-00	390	1-102-822-00	0.0068	1-102-127-00
9	1-102-946-00	62	1-101-886-00	430	1-102-823-00	0.0082	1-102-128-00
10	1-102-947-00	68	1-101-888-00	470	1-102-824-00	0.01	1-102-129-00
11	1-102-948-00	75	1-101-890-00	510	1-101-059-00	0.022	1-101-005-00
12	1-102-949-00	82	1-102-971-00	560	1-102-115-00	0.047	1-101-006-00
13	1-102-950-00	91	1-102-972-00	680	1-102-116-00		
15	1-102-951-00	100	1-102-973-00	820	1-102-117-00		
16	1-102-952-00	110	1-102-815-00				
18	1-102-953-00	120	1-102-816-00				
20	1-102-958-00	130	1-101-081-00				

0.001μF = 1,000pF

CERAMIC (SEMICONDUCTOR) CAPACITORS

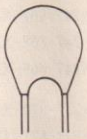
RATING → : Use the high voltage rated one.

CAP. (μF)	25 VOLT.	50 VOLT.	CAP. (μF)	25 VOLT.	50 VOLT.
	PART No.	PART No.		PART No.	PART No.
0.001	→	1-161-039-00	0.018	1-161-016-00	1-161-054-00
0.0012	→	1-161-040-00	0.022	1-161-017-00	1-161-055-00
0.0015		1-161-041-00	0.027	1-161-018-00	1-161-056-00
0.0018		1-161-042-00	0.033	1-161-019-00	1-161-057-00
0.0022		1-161-043-00	0.039	1-161-010-00	1-161-058-00
0.0027	→	1-161-044-00	0.047	1-161-021-00	1-161-059-00
0.0033	→	1-161-045-00	0.056	→	1-161-060-00
0.0039	→	1-161-046-00	0.068	→	1-161-061-00
0.0047	→	1-161-047-00	0.082	1-161-024-00	1-161-062-00
0.0056	→	1-161-048-00	0.1	1-161-025-00	1-161-063-00
0.0068	→	1-161-049-00			
0.0082	1-161-012-00	1-161-050-00			
0.01	1-161-013-00	1-161-051-00			
0.012	→	1-161-052-00			
0.015	1-161-015-00	1-161-053-00			

MYLAR CAPACITORS

CAP. (μF)	RATING			CAP. (μF)	RATING			CAP. (μF)	RATING		
	50 VOLT.	100 VOLT.	200 VOLT.		50 VOLT.	100 VOLT.	200 VOLT.		50 VOLT.	100 VOLT.	200 VOLT.
	PART No.	PART No.	PART No.		PART No.	PART No.	PART No.		PART No.	PART No.	PART No.
0.001	1-108-227-00	1-108-365-00	1-108-409-00	0.01	1-108-239-00	1-108-377-00	1-108-421-00	0.1	1-108-251-00	1-108-389-00	1-108-433-00
0.0012	1-108-351-00	1-108-366-00	1-108-410-00	0.012	1-108-357-00	1-108-378-00	1-108-422-00	0.12	1-108-363-00	1-108-390-00	1-108-434-00
0.0015	1-108-228-00	1-108-367-00	1-108-411-00	0.015	1-108-240-00	1-108-379-00	1-108-423-00	0.15	1-108-252-00	1-108-391-00	1-108-435-00
0.0018	1-108-352-00	1-108-368-00	1-108-412-00	0.018	1-108-358-00	1-108-380-00	1-108-424-00	0.18	1-108-364-00	1-108-392-00	1-108-436-00
0.0022	1-108-230-00	1-108-369-00	1-108-413-00	0.022	1-108-242-00	1-108-381-00	1-108-425-00	0.22	1-108-254-00	1-108-393-00	1-108-437-00
0.0027	1-108-353-00	1-108-370-00	1-108-414-00	0.027	1-108-359-00	1-108-382-00	1-108-426-00	0.27	1-108-854-00	–	–
0.0033	1-108-232-00	1-108-371-00	1-108-415-00	0.033	1-108-244-00	1-108-383-00	1-108-427-00	0.33	1-108-855-00	–	–
0.0039	1-108-354-00	1-108-372-00	1-108-416-00	0.039	1-108-360-00	1-108-384-00	1-108-428-00	0.39	1-108-856-00	–	–
0.0047	1-108-234-00	1-108-373-00	1-108-417-00	0.047	1-108-246-00	1-108-385-00	1-108-429-00	0.47	1-108-857-00	–	–
0.0056	1-108-355-00	1-108-374-00	1-108-418-00	0.056	1-108-361-00	1-108-386-00	1-108-430-00				
0.0068	1-108-237-00	1-108-375-00	1-108-419-00	0.068	1-108-249-00	1-108-387-00	1-108-431-00				
0.0082	1-108-356-00	1-108-376-00	1-108-420-00	0.082	1-108-362-00	1-108-388-00	1-108-432-00				

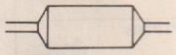
TANTALUM CAPACITORS



→: Use the high voltage rated one.

CAP. (μF)	RATING						
	3.15 VOLT.	6.3 VOLT.	10 VOLT.	16 VOLT.	20 VOLT.	25 VOLT.	35 VOLT.
	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.
0.01					→	→	1-131-396-00
0.015						→	1-131-397-00
0.022						→	1-131-398-00
0.033						→	1-131-399-00
0.047						→	1-131-400-00
0.068					→	→	1-131-401-00
0.1					→	→	1-131-402-00
0.15					→	→	1-131-403-00
0.22					→	→	1-131-404-00
0.33					→	1-131-409-00	1-131-405-00
0.47	–	–	–	–	1-131-412-00	→	1-131-406-00
0.68	–	–	–	1-131-415-00	→	1-131-410-00	1-131-407-00
1.0	–	–	1-131-418-00	–	1-131-413-00	→	1-131-408-00
1.5	–	1-131-421-00	–	1-131-416-00	→	1-131-411-00	1-131-348-00
2.2	1-131-424-00	–	1-131-419-00	–	1-131-414-00	1-131-355-00	1-131-349-00
3.3	–	1-131-422-00	–	1-131-417-00	1-131-362-00	1-131-356-00	1-131-350-00
4.7	1-131-425-00	–	1-131-420-00	1-131-369-00	1-131-363-00	1-131-357-00	1-131-351-00
6.8	–	1-131-423-00	1-131-376-00	1-131-370-00	1-131-364-00	1-131-358-00	1-131-352-00
10	1-131-426-00	1-131-383-00	1-131-377-00	1-131-371-00	1-131-365-00	1-131-359-00	1-131-353-00
15	1-131-390-00	1-131-384-00	1-131-378-00	1-131-372-00	1-131-366-00	1-131-360-00	–
22	1-131-391-00	1-131-385-00	1-131-379-00	1-131-373-00	1-131-367-00		
33	1-131-392-00	1-131-386-00	1-131-380-00	1-131-374-00			
47	1-131-393-00	1-131-387-00	1-131-381-00	–			
68	1-131-394-00	1-131-388-00	–	–			
100	1-131-395-00	–	–	–			

TANTALUM CAPACITORS



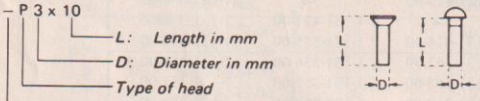
CAP. (μF)	RATING					
	3 VOLT.	6.3 VOLT.	10 VOLT.	16 VOLT.	20 VOLT.	35 VOLT.
	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.
0.033						1-131-273-00
0.047						1-131-274-00
0.068						1-131-275-00
0.1						1-131-276-00
0.15						1-131-277-00
0.22			–	–	1-131-262-00	1-131-278-00
0.33			–	–	1-131-263-00	1-131-279-00
0.47			1-131-169-00	–	1-131-264-00	1-131-280-00
0.68			–	1-131-258-00	1-131-265-00	1-131-281-00
1.0			1-131-254-00	–	1-131-266-00	1-131-282-00
1.5		1-131-250-00	–	–	1-131-267-00	1-131-283-00
2.2		–	–	1-131-259-00	1-131-268-00	1-131-284-00
3.3		–	1-131-255-00	–	1-131-269-00	–
4.7		1-131-251-00	1-131-171-00	–	1-131-270-00	–
6.8		–	–	1-131-260-00	1-131-271-00	–
10	–	–	1-131-256-00	–	1-131-272-00	–
15	–	1-131-252-00	–	1-131-261-00		
22	–	–	1-131-257-00	–		
33	1-131-176-00	1-131-253-00	1-131-173-00	–		
47	1-131-288-00	1-131-174-00	–	–		
100	1-131-177-00					

1/6 WATT CARBON RESISTORS

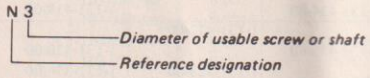
Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.
1.0	–	10	1-247-783-XX	100	1-247-807-XX	1.0k	1-247-831-XX	10k	1-247-855-XX	100k	1-247-879-XX	1.0M	1-247-903-XX
1.1	–	11	1-247-784-XX	110	1-247-808-XX	1.1k	1-247-832-XX	11k	1-247-856-XX	110k	1-247-880-XX	1.1M	–
1.2	–	12	1-247-785-XX	120	1-247-809-XX	1.2k	1-247-833-XX	12k	1-247-857-XX	120k	1-247-881-XX	1.2M	–
1.3	–	13	1-247-786-XX	130	1-247-810-XX	1.3k	1-247-834-XX	13k	1-247-858-XX	130k	1-247-882-XX	1.3M	–
1.5	–	15	1-247-787-XX	150	1-247-811-XX	1.5k	1-247-835-XX	15k	1-247-859-XX	150k	1-247-883-XX	1.5M	–
1.6	–	16	1-247-788-XX	160	1-247-812-XX	1.6k	1-247-836-XX	16k	1-247-860-XX	160k	1-247-884-XX	1.6M	–
1.8	–	18	1-247-789-XX	180	1-247-813-XX	1.8k	1-247-837-XX	18k	1-247-861-XX	180k	1-247-885-XX	1.8M	–
2.0	–	20	1-247-790-XX	200	1-247-814-XX	2.0k	1-247-838-XX	20k	1-247-862-XX	200k	1-247-886-XX	2.0M	–
2.2	1-247-767-XX	22	1-247-791-XX	220	1-247-815-XX	2.2k	1-247-839-XX	22k	1-247-863-XX	220k	1-247-887-XX	2.2M	–
2.4	1-247-768-XX	24	1-247-792-XX	240	1-247-816-XX	2.4k	1-247-840-XX	24k	1-247-864-XX	240k	1-247-888-XX	2.4M	–
2.7	1-247-769-XX	27	1-247-793-XX	270	1-247-817-XX	2.7k	1-247-841-XX	27k	1-247-865-XX	270k	1-247-889-XX	2.7M	–
3.0	1-247-770-XX	30	1-247-794-XX	300	1-247-818-XX	3.0k	1-247-842-XX	30k	1-247-866-XX	300k	1-247-890-XX	3.0M	–
3.3	1-247-771-XX	33	1-247-795-XX	330	1-247-819-XX	3.3k	1-247-843-XX	33k	1-247-867-XX	**330k**	1-247-891-XX	3.3M	–
3.6	1-247-772-XX	36	1-247-796-XX	360	1-247-820-XX	3.6k	1-247-844-XX	36k	1-247-868-XX	**360k**	1-247-892-XX	3.6M	–
3.9	1-247-773-XX	39	1-247-797-XX	390	1-247-821-XX	3.9k	1-247-845-XX	39k	1-247-869-XX	390k	1-247-893-XX	3.9M	–
4.3	1-247-774-XX	43	1-247-798-XX	430	1-247-822-XX	4.3k	1-247-846-XX	43k	1-247-870-XX	430k	1-247-894-XX	4.3M	–
4.7	1-247-775-XX	47	1-247-799-XX	470	1-247-823-XX	4.7k	1-247-847-XX	47k	1-247-871-XX	470k	1-247-895-XX	4.7M	–
5.1	1-247-776-XX	51	1-247-800-XX	510	1-247-824-XX	5.1k	1-247-848-XX	51k	1-247-872-XX	510k	1-247-896-XX	5.1M	–
5.6	1-247-777-XX	56	1-247-801-XX	560	1-247-825-XX	5.6k	1-247-849-XX	56k	1-247-873-XX	560k	1-247-897-XX	5.6M	–
6.2	1-247-778-XX	62	1-247-802-XX	620	1-247-826-XX	6.2k	1-247-850-XX	62k	1-247-874-XX	620k	1-247-898-XX	6.2M	–
6.8	1-247-779-XX	68	1-247-803-XX	680	1-247-827-XX	6.8k	1-247-851-XX	68k	1-247-875-XX	680k	1-247-899-XX	6.8M	–
7.5	1-247-780-XX	75	1-247-804-XX	750	1-247-828-XX	7.5k	1-247-852-XX	75k	1-247-876-XX	750k	1-247-900-XX	7.5M	–
8.2	1-247-781-XX	82	1-247-805-XX	820	1-247-829-XX	8.2k	1-247-853-XX	82k	1-247-877-XX	820k	1-247-901-XX	8.2M	–
9.1	1-247-782-XX	91	1-247-806-XX	910	1-247-830-XX	9.1k	1-247-854-XX	91k	1-247-878-XX	910k	1-247-902-XX	9.1M	–
												10M	–

HARDWARE NOMENCLATURE

Screw:



Nut, Washer, Retaining ring:



Reference Designation	Shape	Description	Remarks
SCREWS			
P		pan-head screw	binding-head (B) screw for replacement
PWH		pan-head screw with washer face	binding-head (B) screw and flat washer for replacement
PS PSP		pan-head screw with spring washer	binding-head (B) screw and spring washer for replacement
PSW PSPW		pan-head screw with spring and flat washers	binding-head (B) screw and spring and flat washers for replacement
R		round-head screw	binding-head (B) screw for replacement
K		flat-countersunk-head screw	
RK		oval-countersunk-head screw	
B		binding-head screw	
T		truss-head screw	binding-head (B) screw for replacement
F		flat-fillister-head screw	
RF		fillister-head screw	
BV		brazier-head screw	

Reference Designation	Shape	Description	Remarks
SELF-TAPPING SCREWS			
TA		self-tapping screw	ex: TA, P 3 x 10
PTP		pan-head self-tapping screw	binding-head self-tapping (TA, B) screw for replacement
PTPWH		pan-head self-tapping screw with washer face	binding-head self tapping (TA, B) screw and flat washer for replacement
PTTWH		pan-head thread-rolling screw with washer face	binding-head (B) screw and flat washer for replacement
SET SCREWS			
SC		set screw	
SC		hexagon-socket set screw	ex: SC 2.6 x 4, hexagon socket
NUT			
N		nut	
WASHERS			
W		flat washer	
SW		spring washer	
LW		internal-tooth lock washer	ex: LW3, internal
LW		external-tooth lock washer	ex: LW3, external
RETAINING RINGS			
E		retaining ring	
G		grip-type retaining ring	

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